TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, [redacted] 1922

No. [redacted]260

CHARLES KELLER, CUNO H. RUDOLPH, AND JAMES F. OYSTER, CONSTITUTING THE BOARD OF PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, APPELLANTS,

vs.

POTOMAC ELECTRIC POWER COMPANY.

APPEAL FROM THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

FILED JANUARY 24, 1923.

(28,672)

(28,673)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1921.

No. 718.

CHARLES KELLER, CUNO H. RUDOLPH, AND JAMES F. OYSTER, CONSTITUTING THE BOARD OF PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, APPELLANTS,

vs.

POTOMAC ELECTRIC POWER COMPANY.

APPEAL FROM THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

INDEX.

	Page.
Record from the supreme court of the District of Columbia	1
Caption	1
Bill for injunction	2
"Exhibit No. 1"—Letter from Commission, May 2, 1916	32
Answer of the Public Utilities Commission and others	33
Answer and cross-bill of defendant Washington Railway & Electric Company	46
Answer of Public Utilities Commission to cross-bill	47
Opinion of the court, Gould, J	48
Final decree; appeal noted by Potomac Electric Power Company and Washington Railway & Electric Company	61
Memoranda: Appeal bond of plaintiff and defendant No. 5 approved and filed; time within which to submit statement of evidence extended; statement of evidence signed and filed	62
Assignment of errors	62

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INDEX.

	Page.
Designation of record	68
Clerk's certificate	69
Agreed statement of facts, etc	69
Findings of Commission with respect to elements of value	70
Statement	72
Order No. 182, Public Utilities Commission, May 18, 1916	72
Petition of Washington Railway and Electric Company	77
Answer of Potomac Electric Power Company	83
Amendment of Potomac Electric Power Company to answer	86
Conclusions of the Commission, July 6, 1916	87
Testimony of C. L. Pillsbury	89
Report of engineering department with respect to reproduction, etc., of Potomac Electric Power Company	89
Final summaries	109
Testimony of Andrew Sangster	115
Potomac Electric Power Company comparison of historical costs	126
Sangster's Exhibit F—Summary of net expenditures	128
D—Statement of accounts, United States Electric Light Co., September 30, 1902	129
E—Statement of value of plant and franchise United States Electric Light Company	130
G—Adjustment of cost of plant and equipment	131
Final analysis of plant and equipment account	164
Testimony of C. L. Pillsbury	296
Letter, July 28, 1916	408
August 4, 1916	413
September 8, 1916	417
September 11, 1916	420
September 12, 1916	423
October 9, 1916	424
October 20, 1916	425
October 30, 1916	432
Table 21—Comparison of appraisements of land	441
Testimony of Mr. Richards	442
Table 22—Reproduction cost of land as revised by the Commission	446
Testimony of Mr. Ham	446
Mr. Beal	446
Dr. E. W. Bemis	448
Sangster's Exhibit No. 1—Comparative summary of gross earnings, etc., 1883-'4-'8-'9; 1901-'2	486
2—Comparative summary of gross earnings, etc., 1896 and 1914	487
3—Comparative summary of gross earnings, etc., 1914-1915	488
Testimony of C. L. Pillsbury	491

Page.

Bemis' Exhibit No. 1—Totals as adjusted by Pillsbury, November, 1916 491
Testimony of Dr. E. W. Bemis 494
Bemis' Exhibit A—Comparison of reproduction with recorded costs within and without the District ... 495
3A—Comparison of reproduction and recorded costs both for the property new and for the property new less depreciation within the outside District 497
4A—Final summary 498
Testimony of Andrew Sangster 571
Testimony of J. Keppeyne 580
Motion to dismiss and grounds therefor 582
Testimony of Harold Almert 584
Roscoe Seybold 706
Louis Simon 709
James L. Marshall 712
Samuel J. Prescott 714
J. Keppeyne 715
James H. Botz 720
Botz' Exhibit No. 1—Additions to capital accounts 720
Testimony of Wm. F. Ham 721
Ray Palmer 828
C. G. Young 846
F. B. H. Paine 875
Howard S. Graham 909
Testimony of Ralph Crowell 913
Crowell's Exhibit No. 2—Approximate increase in price of materials 915
Testimony of L. E. Sinclair 916
Affidavits of Harold Almert 917
Testimony of Wm. P. Richards 921
Testimony of J. H. Botz 922
Opinion and findings of the Public Utilities Commission in the matter of the valuation of the Potomac Electric Power Co. 925
Order substituting Hendrick *et al.* in place and stead of Newman *et al.* as appellees 1054
Opinion, Robb, J 1055
Dissenting opinion, Smyth, C. J 1058
Decree 1062
Mandate 1062
Motion for leave to appeal 1064
Order overruling motion 1065
Assignment of errors 1065
Præcipe for transcript of record 1066
Petition for appeal and writ of certiorari 1067
Citation and acknowledgment of service 1076
Clerk's certificate 1077

Court of Appeals of the District of Columbia.

No. 3485.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, et al., Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA et al.

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a Supreme Court of the District of Columbia.

In Equity.

No. 35336.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, Plaintiff,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; Oliver P. Newman, John G. D. Knight, and Louis Brownlow, Commissioners of the District of Columbia and as Such Constituting the Said Public Utilities Commission of the District of Columbia, and The Washington Railway and Electric Company, a Corporation, Defendants.

UNITED STATES OF AMERICA,
District of Columbia, ss:

Be it remembered, That in the Supreme Court of the District of Columbia, at the City of Washington, in said District, at the times hereinafter mentioned, the following papers were filed and proceedings had, in the above-entitled cause, to wit:

1 *Bill for Injunction.*

Filed July 31, 1917.

In the Supreme Court of the District of Columbia.

In Equity.

#35336.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, Plaintiff,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; Oliver P. Newman, John G. D. Knight, and Louis Brownlow, Commissioners of the District of Columbia and as Such Constituting the Said Public Utilities Commission of the District of Columbia, and The Washington Railway and Electric Company, a Corporation, Defendants.

To the Supreme Court of the District of Columbia, holding an equity court for the said District of Columbia:

The plaintiff herein shows to the Court the following facts:

1. That the plaintiff, the Potomac Electric Power Company, is a corporation, organized and existing under the General Incorporation Laws of the District of Columbia, and since the 28th day of April, 1896, has been engaged in the business of generating and selling electric current and energy for power and illuminating purposes to the public authorities and to individuals within and without the District of Columbia, and is the owner of valuable franchises and other property and is a public utility within the terms of the Act of Congress hereinafter mentioned creating the Public Utilities Commission of the District of Columbia.

2. The defendant, the Public Utilities Commission of the District of Columbia, is a corporation created by the 8th Section of the Act of Congress app. March 4, 1913, entitled, "An Act Making Appro-
priations to Provide for the Expenses of the Government of
2 the District of Columbia for the Fiscal Year ending June 30,
1914, and for Other Purposes," composed of Louis Brownlow, Oliver P. Newman and John G. D. Knight, who are for the time being Commissioners of the District of Columbia, and as such constitute said Public Utilities Commission, which has a corporate seal, and is capable of suing and being sued by its corporate name.

The defendant, the Washington Railway and Electric Company, is a corporation created originally under the name of the Washington and Great Falls Electric Railway Company by a certain Act of Congress app. July 29, 1892, (27 Stats. 326) and subsequently amended, and by virtue of a subsequent Act of Congress approved June 5, 1900, (31 Stats, p. 270) changed its name to the Wash-

ington Railway and Electric Company; is resident within the District of Columbia, is a public utility within the terms of the Act of Congress above mentioned creating the Public Utilities Commission of the District of Columbia, and under the provisions of its charter is authorized to acquire and hold shares of the capital stock and other securities of the certain other street railway companies mentioned therein, and to acquire their property and franchises, and shares of stock of any company supplying or under contract to supply power in the operation of its railway to it or to any of the corporations whose shares of stock or whose property and franchises it was authorized to acquire thereunder, and as a part of such contract to exchange its stock and securities for the stock and securities of any such electric power company, and to guarantee the securities of any such power company. Pursuant to this authority, it acquired and held and still holds all of the capital stock of the complain-
3 ant company above mentioned; has a contract with it for securing all of the electric power needed by it and its subsidiary lines upon the terms and conditions hereinafter stated, and as a part of said contract has guaranteed bonds of the said Potomac Electric Power Company now outstanding and in the hands of the public to an amount aggregating approximately $8,000,000.00; and said defendant company is made a party defendant hereto by reason of its interest in this proceeding as sole stockholder in the complainant company, as a party to said contract, and its guaranty of said bonds.

3. That under the provisions of Paragraphs 6, 7 and 8 of the Act of Congress above mentioned, approved March 4, 1913, the Public Utilities Commission is, among other things, given jurisdiction to ascertain the amount of money expended in the construction and equipment of every public utility in the District of Columbia, including the money expended to procure any right of way, also the amount of money it would require to secure the rights of way; to reconstruct any conduits, subways, poles, wires, switchboards, exchanges, offices, works, storage plants, power plants, machinery, and any other property or instrument not included in the foregoing enumeration used in or useful to the business of such public utility, and to replace all the physical properties belonging to the public utility, and is further required to value the property of every such utility actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation. Other paragraphs direct the Commission to ascertain and determine proper and adequate rates of depreciation of the several classes of property of the public utility sufficient to provide the amounts required
4 over and above the expense of maintenance to keep such property in a state of efficiency corresponding to the progress of the industry, and to provide therefor in fixing the rates, tolls and charges aforesaid to be paid by the public. By still other provisions of said Act the said Commission is given jurisdiction to exercise general regulatory control over and to fix fair and adequate rates, tolls and charges to be paid by the consumers to the utility.

4. On the Second day of May, 1916, the said Commission after

certain ex parte investigations relative thereto, served upon the plaintiff company what purported to be certain summaries of estimates of the cost of reproduction of the property of the plaintiff made by the "engineering branch" of what was termed by it the "valuation bureau" of the Commission, with a statement that the Commission would proceed to set a date for a hearing on the valuation as required by law, but that before doing so desired to confer with the said plaintiff company concerning procedure and other matters relative to the valuation which might suggest themselves, and set Wednesday, May 10, 1916, as the day, and 10:00 o'clock a. m. as the hour for such conference. Said conference was held but resulted in no agreement or announcement by the Commission as to the course of procedure, except that the Commission at that time assumed that the costs of reproduction as stated in the summaries above mentioned which were merely tables of results, were prima facie correct, and that the burden was on the said utility to point out any errors or omissions and to show by proof that it was in any respect erroneous, which assumption was denied by the plaintiff company. A copy of said notice of May 2d transmitting
5 said summaries, marked "Exhibit #1," is herewith filed and asked to be taken as a part of this Bill. The summaries mentioned consist of certain pages numbered from "I" to "XXXII" entitled, "Basis and Conclusions," and certain final summaries bound therewith being pages "1" to "10" only of Volume 1 of the report on the cost of reproduction compiled by Charles L. Pillsbury, engineer in charge of the engineering branch of the valuation bureau, as it now appears in and constitutes a part of the record of the hearing before the Public Utilities Commission hereinafter mentioned. The law under which this Bill is filed requires the Public Utilities Commission to file the same with this Honorable Court, and the same is prayed to be read with and as a part of this Bill when so filed.

5. Subsequently, to-wit, on May 18, 1916, the said defendant Commission without further notice entered its ex parte Order No. 182, a copy of which is found in said record, p. 2, and is asked to be taken as a part of this Bill, alleging that the said defendant had carefully considered the reports of its valuation bureau as to the amount of money expended in the construction and equipment of the Potomac Electric Power Company, as set forth in three volumes therein described, as well as its report of the amount of money it would require to reproduce all the physical property of the Potomac Electric Power Company used in or useful to the business of said company in the District of Columbia, and to replace all the physical property belonging to the said company in the District of Columbia, as set forth in five other certain volumes designated "Report on Cost of Reproduction of Physical Property of the Potomac Electric Power Com-
6 pany within the District of Columbia as of July 1, 1914," volumes number "1" to "5" inclusive, and that it adopted both of said reports as its "prima facie ascertainment" respectively of "the amount of money expended in the construction and equipment of said company, and of the amount of money it would require

to reproduce and replace said" physical property used in or useful to the business of said company in the District of Columbia and to replace all the physical property belonging to the said company in the District of Columbia as aforesaid, and that the Commission had also considered the rates of depreciation as set forth in the last named volumes and adopted the same as its prima facie ascertainment of the rates of depreciation as therein set forth, and that "all of said ascertainments as made by the Commission in accordance with its duty under Paragraphs 6, 7 and 16 of the Public Utilities Law," and ordered that a public hearing in regard thereto should be held on the 26th day of June, 1916, and incorporated therein a notice again calling attention to the certain extracts from the Public Utilities Law therein referred to. Said notice of May 18, 1916, transmitted copies of the volumes above mentioned as a part of said notice, and stated that all of said ascertainments were "prima facie ascertainments of the Commission made from *all available information,*" subject to such "additions, modifications and alterations as may be justified by any evidence adduced before the commission by you or any person or corporation interested," and that the Commission would consider, inter alia, all evidence which may be adduced to show what changes in or additions to its prima facie ascertainments should be made by reason of the fact that said ascertainments have been made as
7 of July 1, 1914, and that "*the aforesaid valuation will be made as a basis for fixing the rates, tolls and charges of the Potomac Electric Power Company to be paid by the public and the elements will be considered with especial reference to that purpose.*" It also prescribed a mode of procedure which required the plaintiff company to first produce all the evidence which it desired to produce, and reserved to the Commission the right to introduce further evidence in respect to the evidence offered by the plaintiff. The eight volumes of reports above mentioned are hereby referred to, made a part of this Bill, and are asked to be treated as a part hereof when they are produced and filed with this Honorable Court in accordance with the provisions of the law under which this suit is instituted.

6. On the 26th day of June, 1916, that being the day mentioned in said Order No. 182 and the notice accompanying the same, the plaintiff company appeared and filed its formal answer thereto, a copy of which is to be found in the record at page 31, and asked to be taken as a part of this Bill.

7. The defendant, the Washington Railway and Electric Company, appeared and filed its petition therein as a respondent to said proceedings, showing its special interest, and asking to be admitted as a party. A copy of said petition is a part of the record and when filed herein by the defendant Commission is asked to be taken as a part of this Bill, which petition the Commission, under respondent's exception, denied, and declined to admit said respondent as a party to said proceedings.

8. On July 3, 1916, the plaintiff company filed an amendment to its answer, setting up the further fact that it, through its duly
8 authorized officers, had made reports to the said Commission pursuant to law; that it had duly issued and that there were

then outstanding stocks and bonds of said company aggregating the sum of $13,000,000.00; that all of said stocks and bonds had been issued bona fide and pursuant to law for capital charges; that the entire proceeds thereof had been expended for the legitimate purposes of the corporation in serving the public; that their due issue had been regularly reported to Congress prior to the creation of said Commission; that since the creation of said Commission it had expended out of its Treasury funds for additional capital charges exceeding $600,000.00 for which no capital stock or bonds had been issued, although application had been duly made for the issue of bonds to reimburse its Treasury therefor, to the said Commission; that while a proper valuation would show the value of its property as of that date to be in excess of $16,500,000.00, the minimum value of the physical property of the plaintiff could in no event be taken to be less than the aggregate of its outstanding stocks and bonds and the said additional capital expenditures. This amended answer will be found on pages 87 to 80 of the transcript of the record already asked to be taken as a part of this Bill. After this proceeding was terminated the said Commission authorized the Potomac Electric Power Company to issue bonds for said $600,000.00 of capital expenditures, together with $400,000.00 additional capital expenditures since made, aggregating $1,000,000.00 of additional bonds at six per centum, with the guaranty thereof by the Washington Railway and Electric Company.

9. Charles L. Pillsbury, the engineering expert employed by the Commission to make its estimate of the cost of reproduction of
9 the property of the Potomac Electric Power Company was the first witness to testify in regard thereto. During the course of his direct examination various exceptions were taken to question-asked of and answers made by him which it would encumber this Bill unnecessarily to set out herein at length, but each of said exceptions are set out in the transcript of the record and are relied upon here to show that the conclusions of the said Commission hereinafter complained of to the extent that they are sustainable at all are based upon illegal and incompetent assumptions and inferences and upon insufficient and illegal evidence (See transcript pp. 259-300, 820-889, 1806, 1807). During the direct examination of said witness the Commission offered in evidence the entire five volumes of his report, which offer was objected to by the plaintiff upon the ground that they had not been sufficiently established by proof, which objection was overruled subject to plaintiff's exception to said ruling; and at the completion of said direct examination, pursuant to leave previously reserved, and without waiving any exception previously taken the plaintiff company moved to exclude all of the report of said witness Charles L. Pillsbury and all of his evidence in regard thereto, upon the following grounds as shown by the record of this proceeding when produced as required by law (T. pp. 1803-1805):

1. Because it is not accurate or complete, according to the statement of the witness himself.

2. Because it is hearsay, or founded upon hearsay, and is not the result of his own knowledge, investigation or consideration.

3. Because his experience does not qualify him as an expert engineer or appraiser for the valuation of such a property as that of the Potomac Electric Power Company.

4. Because said report is incomplete and inaccurate as to the value of the property of the Potomac Electric Power Company as of the present time.

10 5. Because it is not the result of personal knowledge, personal investigation of the witness, or of any other person or persons shown to be competent to compile the same, but is the composite result of investigations and examinations by unknown persons whose competency has not been established.

6. Because it omits many elements of cost necessary to be incurred in reproducing such a property as that of the Potomac Electric Power Company.

7. Because said report is compiled for a period and upon the basis of costs existing more than two years anterior to the present time, and no attempt has been made therein to state present values or costs.

Thereupon, without waiving said exceptions, said witness was cross-examined, subject to said exceptions which were renewed at its completion (T. pp. 1807-2341).

10. Andrew Sangster, the accountant who had compiled the accounting report previously referred to and adopted prima facie by the commission, was likewise introduced as a witness on behalf of the commission and testified generally in regard thereto, subject to various objections to his testimony upon the ground that it was illegal, incompetent and insufficient, which were also overruled. Exceptions to the rulings of the Commission on said objections were duly taken and are also now relied upon for the reasons above stated in regard to the rulings in regard to Mr. Pillsbury' testimony. His entire report, comprising three volumes, was then offered in evidence and objected to by the Potomac Electric Power Company because the conclusions stated therein were mere conclusions without any sufficient statement of facts upon which they were based; there was nothing in the act requiring such conclusions to be ascertained; because said inquiry was contrary to the provisions of the public utilities law under which the Commission was ordered to ascertain the cost of the physical property of the plaintiff, used and useful at the time of the inquiry; because the eliminations therein reported were not supported by evidence; because the statute does not contemplate that there should be such eliminations of the

11 cost or money expended in the construction and equipment of the utility; because the direct testimony showed that the said report was based upon assumed facts not stated; because the report had disregarded certain entries upon plaintiff's property accounts upon bare inferences; because the witness had ignored certain entries in the books and eliminated certain other entries; because it was based upon hearsay and undisclosed information received from undisclosed persons, and upon information received from inventories made by unknown persons; because he had eliminated other items because of presumptions indulged in by him and because of unfounded theories entertained by the witness, and

because under the guise of intersectional adjustments he had made eliminations which were undisclosed; all of which will appear by reference to the transcript of the record, pp. 336-365, 399-510, and 513, when produced. The action of the Commission in overruling its exceptions in regard thereto are now averred as error and relied on. At the completion of his direct examination the plaintiff company again moved the exclusion of his report and all of his testimony given in support thereof, upon the following grounds, as will appear from the record of said proceeding when produced as required by law, to-wit:

For the reasons stated on July 13th (T. p. 399); for the reasons stated by Mr. Bowen on July 14th (T. pp. 510-512); for the reasons stated by Mr. Bowen on July 20th (T. pp. 816-818), and for the following additional reasons:

1. Because the said reports and evidence are incompetent and irrelevant to any legitimate purpose of this investigation.

2. Because the said report is incomplete and inaccurate for the period it purports to cover.

3. Because it is not the result of personal investigation or personal consideration by the witness or by any third person or persons shown to be competent to compile the same from the books and records of this company upon which it is claimed to be based,
12 but is the composite result of investigations and examinations by unknown persons.

4. Because, while purporting to be compiled from the books and records of this respondent, it appears that the original book and record entries have been disregarded and without adequate reason shown or stated.

5. Because it does not show nor purport to show the amount of money or value actually expended for capital purposes in the construction and equipment of the Potomac Electric Power Company at present or at any given time in the past.

6. Because it does not show nor purport to show what, if any, amount charged, or otherwise shown by the books of the respondent as so expended, should not have been so charged or shown nor what, if any, such amounts were not in fact so expended.

7. Because it does not show nor purport to show what, if any, amounts so actually expended should not have been so expended.

8. Because the report is the result of hearsay and of unidentified and undesignated reports, rumors and investigations, made or repeated by other and unidentified third persons communicated to, or received by, the witness by means of other channels not stated or shown and without notice, examination or verification on the part of respondent and with no knowledge of said third persons nor of the substance, contents or accuracy of their reports, rumors or investigations.

9. Because this Commission has failed to furnish to respondent the data in its files from which said report is compiled, when requested for the purpose of enabling respondent to verify its correctness" (T. pp. 909-912. See also pp. 1765-1769 for ruling).

This motion was overruled and exception duly noted. And with-

out waiving said exception the cross-examination of Mr. Sangster was then proceeded with (T. pp. 914-1801), and upon its completion the said plaintiff's motions and exceptions were renewed and are now relied upon to show error.

The Commission also produced its Assessor of Taxes, Wm. P. Richards, as a witness, who testified that he had been assessor of taxes in the District of Columbia for a number of years previous, and that as such assessor it had been his duty to assess all real estate in the District of Columbia for taxation; that at the request of the Commission he had made the valuations of the plaintiff's real estate which are comprised in the Pillsbury report, and that they were the same values which he had previously adopted
13 and acted upon in assessing this same property for the purposes of taxation; that pursuant to the direction of the Commission he had applied the rule of the willing buyer and willing seller as his guide, but had allowed nothing for any extraordinary or special purpose for which property was used or was capable of being used. Being questioned whether he could with fairness apply the rule as between "a willing seller and a willing buyer" to a public service corporation which was confined within very restricted limits in the choice of property available for its uses and required by it in order to discharge its duties to the public, cross-examination along this line was forbidden by the Commission upon the ground that "by order of the Commission land was appraised by the District Assessor and his assistants, the amounts as it appears in each case representing the normal price such as in the opinion of the assessor would be paid by a willing buyer to a willing seller in a bona fide sale with no special inducements either to sell or to buy," to which ruling exception was duly taken (T. pp. 563-565).

It being admitted that the foregoing was all of the evidence which the Commission would introduce upon the real estate valuation returned in the Pillsbury report, the plaintiff moved to exclude from the record the evidence introduced on this point for the following reasons, as shown by the record:

1. Because the only witness who testified to sustain these valuations had only proven values made by him as assessor for taxation purposes.

2. Because he has only given consideration to elements of value usually considered by him for purposes of taxation.

3. Because the instructions under which he made the assessment for this purpose given him by the commission and followed by him, prevented him from giving consideration to other material
14 elements of value.

4. Because this commission had denied the respondent the right of cross-examination as to the justness and fairness of assessments made upon the exclusion of such additional considerations.

This motion was overruled and exception duly taken, and is now relied upon.

12. Edward W. Bemis was then called by the Commission. He testified that his business was "advising cities, states and the Na-

tional Government with regard to valuations and rates of public utilities and in charge of some appraisals," and that he had been employed by the Public Utilities Commission as the head of the valuation bureau; that under his general direction and supervision the valuation made in this case at the expense of the Commission had been conducted, and testified as an expert in regard thereto over the objection of said Potomac Electric Power Company as to his qualifications. He was permitted over the said objection to introduce in evidence certain tables prepared by him. At the completion of his direct examination (T. p. 2363) the plaintiff moved to exclude all of his testimnoy and the tables of figures introduced in evidence by him, on the following grounds, as shown by the record when produced as required by law:

1. Because all of the testimony and tables of figures are incompetent and irrelevant to any legitimate purpose of this investigation.

2. Because said testimony and tables of figures are based upon reports that are incomplete and inaccurate.

3. Because said tables of figures are not the result of personal investigation or personal consideration by the witness (He had testified that they were based purely upon the testimony of Mr. Sangster and Mr. Pillsbury).

4. Because, while said tables of figures are purported to be compiled from the books and records of this respondent, it appears that the original book and record entries have been disregarded and without adequate reason shown or stated.

5. Because said tables of figures introduced by the witness and concerning which he testified are the result of hearsay and of unidentified and undesignated reports, rumors and investigations made or repeated by other and unidentified third persons, communicated to, and received by the witness and persons from whom he received them, by means of other channels not stated or shown, without notice, knowledge, means of knowledge, or opportunity of investigation, examination, or verification on the part of the respondent, and with no showing of the identity, knowledge or means of knowledge of the said third persons, nor the substance, contents, or accuracy of said reports, rumors or investigations.

6. Because the tables of figures * * * are based upon certain intersectional adjustments made by Mr. Sangster, the details of which he has not furnished the respondent when requested for the purpose of enabling respondent to verify the correctness thereof.

This motion was overruled and exception noted. Thereupon said witness was cross-examined and at its completion said exceptions were again renewed (T. pp. 2639-3285).

13. The Commission also introduced as a witness on its behalf an engineer, one J. Keppeyne, one of its employes, who testified that he had made an examination of the property of the Potomac Electric Power Company located outside of the District of Columbia, some in Maryland and some in Virginia, consisting mostly of poles, wires and a few substations, the total cost of which he estimated to be $492,225.00, based upon a rough inventory as to about seventy per centum of the properties, and upon the difference between the totals

of the Pillsbury report and the Sangster report as to certain other classes of property constituting the remaining thirty per centum thereof. At the termination of this evidence counsel for the Poto mac Electric Power Company moved the Commission to exclude the evidence of this witness as not being competent and not sufficiently accurate to justify the Commission in basing any finding upon it; also upon the ground, as will be seen by the record when produced as required by law, that it was not based upon the witness' investigation or judgment, but upon certain comparisons made by him between Mr. Sangster's and Mr. Pillsbury's reports, as will also
16 be seen by the record when produced herein as required by law (T. p. 3391), which motion was overruled and an exception noted.

14. The foregoing was all the evidence introduced on behalf of the Commission which would enable it to ascertain therefrom either the amount of money expended in the construction and equipment of this public utility, including the amount of money expended to procure its rights of way, which branch of the inquiry professed to be covered by the Sangster report, supplemented to some extent by the testimony of Edward W. Bemis, or the amount of money it would require to secure the right of way; reconstruct the conduits, subways, poles, wires, switchboards, exchanges, offices, works, storage plants, power plants, machinery and other property or instruments used in or useful to the business of such public utility, which was the branch of the inquiry purporting to be covered by the Pillsbury report. No evidence was offered by the Commission to enable it to ascertain the judicial or other sales of property or franchises purchased or acquired by the plaintiff, or the amounts purporting to have been paid and in what manner paid therefor, although required by the express provisions of Paragraph 6 to do so; neither did all or any of said evidence comprise any statement of value showing or tending to show, nor was any effort made on behalf of the Commission to adduce any evidence showing or sufficient to show or tending to show the value of the property of the plaintiff within the District of Columbia or elsewhere, actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation.

15. Plaintiff avers that this evidence was insufficient to
17 show all or any of the elements aforesaid for the following, among other, reasons apparent on the record when produced as required by law:

(*a*) The Sangster report ignored many expenditures made by the plaintiff in the construction and equipment of its property, including all of the expenses of organization, promotion and financing; all of the development costs; all of the expenditures made by the plaintiff in acquiring the property and franchises of other companies; all capital expenditures, with a few minor exceptions, made by the plaintiff in its construction and equipment, but which originally had been charged to operating expense, and all charges and expenditures, though shown by the books actually to have been made originally in the construction and equipment of the property, which he was unable to trace definitely to property actually in existence and actually

used at the date of his report, to wit, July 1, 1914, and arbitrarily and contrary to the facts assumed that all of certain classes of construction work, to wit, overhead transmission and distribution, constructed prior to an arbitrary date assumed by the witness had actually passed out of existence, which resulted in eliminating from the property accounts of the plaintiffs a sum in excess of $5,000,000.00.

(*b*) The said Pillsbury in his report of the cost of reproduction of the property, contrary to his own judgment as to what was right and proper, in order to ascertain the true cost of reproduction, was compelled by peremptory directions given him by the Commission and his immediate superior, Edward W. Bemis, to confine himself in his estimate to that portion of the physical property actually within the District of Columbia not used for service outside of the said
18 District of Columbia at the assumed date of his inventory; to disregard all pre-organization expenses and all expenses of every character incurred prior to the actual construction, though he testified that according to his judgment, information and experience such costs would necessarily be incurred in reconstructing a property such as that of the Potomac Electric Power Company; he assumed for the purposes of his estimate an insufficient period of construction; made inadequate allowances for interest during construction; made no allowances for the costs of financing, promotion and development, though admitting that all such costs would be incurred in the reconstruction of such a property and would have to be paid for, and stated that he had been also prohibited from estimating for them by the peremptory instructions and directions aforesaid, and though testifying that he felt competent to estimate for them, he had been unable to do so because not permitted. He made no allowance for the cost of attaching the business of the Company to the plant after construction, or for the cost of developing and perfecting the new enterprise; made insufficient allowances for cost of supervision, engineering and contractor's profits; made no allowance for the cost of testing and adjusting machinery and appliances, although testifying that such costs would necessarily be incurred and should be provided for from capital; made no allowances for cost of financing; while what purported to be an inventory of the physical property returned by him contained many various and material errors detected by the engineers employed by the plaintiff to recheck his work, made inadequate allowances for quantities of materials; applied purely theoretical estimates of unit prices which he was unable to explain or to offer data by which they could be verified, and confessedly
19 applied prices which he assumed to be normal prices, upon a theory that a normal price never substantially varied from year to year or from period to period, and that a normal price once established would always be a normal price, though under cross-examination he admitted that the normal prices applied by him could no longer be regarded as normal prices even under his theory, and that much of the material now constituting the plant of the plaintiff could be scrapped and sold as scrap at prices in excess of the prices allowed in his report for new equipment, and declining to state what in his judgment were fair prices as of the date at which

he was testifying or as of any date reasonably approximate thereto, upon his claim that he had not had time to make such estimates.

16. Notwithstanding these insufficiencies and omissions as shown by the evidence introduced on behalf of the Commission itself, the commission in overruling under plaintiff's exception a motion to dismiss, held that the evidence was prima facie sufficient to sustain the estimates submitted originally as its tentative findings and to enable them to base an estimate and finding of fair value thereon. Said motion was made on the following grounds, apparent on the record when filed herein as required by law, to-wit:

1. Because the Commission has not tentatively found, nor ascertained, and no sufficient evidence which will enable the Commission to ascertain has been introduced showing the amount of money expended in the construction and equipment of the Potomac Electric Power Company, or its predecessor companies, including the amount of money expended to procure any rights of way, as contemplated by the Act creating the Public Utilities Commission.

2. Because the Commission has not tentatively found, nor ascertained, and because no sufficient evidence which will enable the Commission to ascertain or find has been offered showing the amount of money it would require to secure rights of way, conduits, subways, poles, wires, switchboards, offices, works, power plants, machinery and all other property or instrumentalities not included in the foregoing enumeration, used in or useful to the business of the Potomac Electric Power Company, as contemplated by the Act creating the Public Utilities Commission.

3. Because the Commission has not tentatively found, nor ascertained, and because no sufficient evidence has been introduced which would enable the Commission to ascertain the amount of money it would require to replace all the physical property belonging to the Potomac Electric Power Company, as contemplated by the Act creating the Public Utilities Commission.

4. Because the Commission has not tentatively found nor ascertained, and because no sufficient evidence has been introduced to enable the Commission to ascertain, the outstanding stocks, bonds, debentures and evidences of indebtedness of the Potomac Electric Power Company, and the amounts respectively thereof, the date when issued, to whom issued, to whom sold, and the price paid in cash, property or labor therefor, what disposition was made of the proceeds, by whom the indebtedness is held so far as ascertainable; the amount purporting to be due thereon, the floating indebtedness of the Potomac Electric Power Company, as contemplated by the Act creating the Public Utilities Commission.

5. Because the Commission has not tentatively found nor ascertained, and because no sufficient evidence has been introduced which will enable the Commission to ascertain the judicial or other sales of the Potomac Electric Power Company, or its predecessor companies, its property or franchises, and the amounts purporting to have been paid, and in what manner paid therefor, and the taxes paid thereon, as contemplated by the Act creating the Public Utilities Commission.

6. Because the Commission has not tentatively found nor ascertained, and no sufficient evidence has been introduced which will enable the Commission to ascertain in detail the gross and net income of the Potomac Electric Power Company from all sources, as contemplated by the Act creating the Public Utilities Commission.

7. Because the Commission has not tentatively found nor ascertained, and no sufficient evidence has been introduced which will enable the Commission to ascertain the fair value of the property of the Potomac Electric Power Company used in and useful to its business as at the present time, the date of this hearing.

8. Because the Commission has refused to permit the Washington Railway and Electric Company to become a party respondent to this proceeding, as without such intervention the property of the said Washington Railway and Electric Company cannot be properly ascertained, nor any consideration given to the sacrifices of the investors in the stock of the said Washington Railway and Electric Company, which company in turn issued and exchanged a portion of its capital stock for the stock of the Potomac Electric Power Company under the provisions of an Act of Congress approved June 5, 1900, and entitled, "An Act Relating to Certain Railway Corporations Owning or Operating Street Railways in the District of Columbia."

21 17. The plaintiff, without waiving its exceptions, introduced as witnesses on the subject of the values of said parcels of real estate, Reginald W. Bell and H. Rozier Dulany, experienced real estate dealers in the City of Washington, whose testimony is found on pages 657-788 of the record when produced as required by law, and showed that the value placed upon the plaintiff's real estate was grossly inadequate and that its fair and reasonable value was in excess of $830,000.00.

18. The next witness was Harold Almert, an experienced engineer of Chicago, Ill., who testified that with his staff he had made a careful detailed inventory and estimate of the cost of reproduction of the physical property of the plaintiff company, contained in four volumes, which were introduced in evidence, and which constitute a part of the record in this case when produced by the defendants as required by law, and showed the bare cost of the reproduction of the physical property alone of the plaintiff company, including working capital, to be $15,835,064.00 as of July 1, 1916, as against Mr. Pillsbury's estimate of $10,235,563.82 for substantially the same property at normal prices as of July 1, 1914, and without allowance by either for any of the great advances in costs following either date, and without the legal, pre-organization and franchise expense the reasonable compensation to conceivers of the project and promoters, which was substantially admitted by defendant's witness Bemis, would be $650,000.00; that brokerage and commission expenses and other necessary expenses would bring the reproduction cost to $20,735,387.63, plus the property rights and easements of plaintiff, which he valued at $2,500,000.00, making a total of $23,235,387.63 as the fair value of the property of plaintiff for rate purposes, all of which will
22 more fully appear by reference to the itemized summary of these costs found on pages 7 and 8 of Volume I of his report.

19. Edmund P. Edwards, Assistant Manager of the Lighting Department of the General Electric Company, of Schenectady, N. Y., and Roscoe Seybold, Manager of the "Price Section" of the Commercial Department of the Westinghouse Electric & Manufacturing Company, of Pittsburgh, Penna., were both introduced and testified to the inadequacy of the price of materials allowed in the Pillsbury report, and the moderateness of similar prices as allowed in the Almert report (T. pp. 3683-3764).

20. Louis Simon, a deal- in metals, testified to the reasonableness of the prices of metals allowed in the Almert report and the inadequacy of those allowed in the Pillsbury report (T. pp. 4149-4163); James L. Marshall, of Washington, D. C., a general contractor who had done a good deal of the building for the plaintiff company, testified as to the inadequacy for labor and materials allowed in the Almert report (T. pp. 4164-4189); Samuel J. Prescott, likewise a general contractor, gave similar testimony (T. pp. 4185-4201).

21. Ray Palmer, an engineer by profession, and who at the time of the testimony was President of the New York and Queens Electric Light & Power Company, testified (T. pp. 4687-4807) that upon the basis of the cost of labor and material as contained in the Almert report and which he ascertained to be $13,127,077.00, the overhead charges contained therein, including cost of supervision, engineering, financing, promoters compensation and cost of development, and interest during construction, were fair and reasonable.

23 22. Charles Griffith Young, of New York City, a consulting engineer of wide experience, corroborated in every way the reasonableness of the estimates of the Almert report for costs of engineering, supervision and contractor costs, and of other overhead charges as stated by Mr. Almert, the result being arrived at by an entirely different method of computation based upon his own judgment and experience and the experience of other engineers (T. pp. 4863-5050).

23. Francis B. H. Paine, of New York City, a consulting engineer of wide practical experience, also testified to the reasonableness, fairness and conservativeness of the findings of the Almert report for all overheads and intangibles, by another and third method of calculation approved and based upon his experience in the actual construction of various public utilities (T. pp. 5050-5225). He further testified that accrued depreciation so long as the property involved was rendering efficient and economical service, should not be deducted from the cost of reproduction in a rate case.

24. Howard S. Graham, a banker of Philadelphia, Penna., testified that the estimates as to the cost of financing as comprised in the Almert report were extremely moderate (T. pp. 5477-5518); Mr. Ralph W. Crowell, the Purchasing Agent of the plaintiff, testified from his records to the costs of articles actually purchased; that the prices for copper, wire, cement, steel bars, conduits, boilers, transformers, meters, etc., contained in the Almert report, were much below the prices actually paid by the plaintiff from July, 1916, to the date of his testimony, and that the increase in prices of all classes of this material from July 1, 1914, the assumed date for

the Pillsbury report, to July 1, 1916, the date for the Almert report, ranged from 10% to 100%, with an average increase of 50%,
24 and an average increase in December, 1916, over July 1914, of 80% (T. pp. 5527-5538).

25. The evidence of the plaintiff company to show the amount of money expended in the construction and equipment of the company consisted principally of the testimony of Wm. F. Ham, its Vice President and Comptroller, as to the said expenditures as taken from the books and records of the Company and as set forth in detail in the exhibits produced and filed by him, and the testimony of L. E. Sinclair, its General Superintendent, the said evidence showing the amount expended in its construction and equipment will be found in the record when produced by the defendants as required by law.

26. In rebuttal the Commission recalled the witness Kappeyne, the Commission's engineer heretofore mentioned, as well as his assistant, Mr. Botz, both of whom had assisted in the check of certain of the many errors found in the Pillsbury report, and they corroborated the general accuracy of the Almert inventory in showing that in eleven out of thirteen comparisons the Almert report was correct and the Pillsbury report confessedly in error (T. pp. 4206-4264).

The foregoing constitutes substantially all the evidence introduced, except certain documentary evidence introduced from time to time.

27. On the Second day of May, 1917, the Commission announced its conclusions, viz., that the historical cost of the property of the plaintiff, both within and without the District of Columbia, used and useful, was $9,212,513.09; that the cost of reproduction of the physical property within the District of Columbia, used and useful for electric operation as of July 1, 1914, was $11,090,228.78; that the cost of reproduction of the physical property both within
25 and without the District of Columbia, used and useful as of the same date, was $11,577,453.78; that the cost of reproduction of its physical property excluded from consideration by the Commission because it was not used and useful for electric purposes, was $627,146.60, showing the cost of reproduction of all of its property, both used and useful, and that not used and useful, was $12,205,600.38, all as of July 1, 1914, and that net additions to property between July 1, 1914, and December 31, 1916, had been $981,170.43, making a total value as of December 31, 1916, in excess of $13,000,000.00, and yet finding a total fair value as of December 31, 1916, to be but $11,231,170.43.

On the 18″ day of May, 1917, the said Commission served upon the plaintiff a copy of its Formal Order No. 208, constituting its opinion and findings in the premises, which is hereby referred to and made a part of this Bill, which order will appear as a part of the record when the same is produced as required by law.

28. On the 6th day of June, 1917, the Potomac Electric Power Company filed with said Public Utilities Commission a memoranda of dissatisfaction and intention to appeal from said order, decision and findings, and to institute proceedings in equity in this Hon-

orable Court to vacate, set aside and modify its order and decision on the ground that the said valuation and rates of depreciation were unlawful, inadequate and unreasonable, for the following among other reasons:

1. Because the findings of the Commission are contrary to the law and contrary to the evidence.

2. Because the Commission has made no finding under Paragraph 6 of the Act of Congress app. Mar. 4, 1913, establishing the Public Utilities Commission, in so far as it requires the Com-
26 mission to ascertain

"The outsanding stock, bonds, debentures and indebtedness, and the amount respectively thereof, the dates when issued, to whom issued, to whom sold, the prices paid in cash, property or labor therefor; what disposition was made of the proceeds, by whom the indebtedness is held so far as ascertainable: the amount purporting to be due thereon, the floating indebtedness of the public utility, the credits due the public utility, other property on hand belonging to it; the judicial or other sales of said public utility, its property or franchises, and the amounts purporting to have been paid, and in what manner paid therefor, and the taxes paid thereon; in detail the gross and net income of the public utility from all sources."

3. Because the Commission did not find the fair value of the property of the petitioner as of the date of said ascertainment as required by Paragraph 7 of said Act, or its fair value at a time reasonably approximate thereto, though sufficient evidence uncontradicted upon which to base such a finding was in the record, and was wholly disregarded.

4. Because the valuation of the Commission, though promulgated on May 2, 1917, and purports to be as of December 31, 1916, was not based upon any evidence as to value upon either of those dates, but was based on an inventory of quantities, prices and values testified to as of July 1, 1914, and were accepted and adhered to by the Commission, although it was admitted that prices and values as of July 1, 1914, were no longer fair or normal prices as of the date of this testimony in the fall of 1916.

5. Because, as to additions to the property made subsequent to July 1, 1914, the Commission, contrary to the evidence, assumed the "recorded cost" of said additions as the sole test of value as of the date of their ascertainment.

6. Because the Commission in making its ascertainments of fair value totally disregarded uncontradicted testimony of creditable witnesses as to such values, showing that the values and prices current as of July 1, 1914, were not fair or current prices or values as of the date of the valuation or as of any time reasonably approximate thereto.

7. Because the finding of the Commission is based upon a portion only of the physical properties of the petitioner, and excludes all

intangibles and all franchises, although Paragraphs 6 and 7 require the valuation of all the property, tangible and intangible, real, personal and mixed, of whatsoever kind or nature, and wherever located.

8. Because the Commission in arriving at its finding deducted for a theoretical depreciation without proof in the record to show what if any depreciation had accrued in fact, to what extent if any it had affected the value of the property, and without stating the amount of such theoretical accrued depreciation it had so deducted.

9. Because the Commission gave no consideration or weight to the testimony of witnesses of the petitioner and disregarded witnesses introduced on behalf of the Commission itself where their testimony was favorable to the petitioner.

27 10. Because the Commission makes wholly insufficient allowances for taxes and insurance during construction.

11. Because the Commission rejected all allowances for the value of certain property now used and useful by the petitioner in its business in the way of additions to the plant of the petitioner, merely because it had been charged to operating expense.

12. Because the Commission excluded from the capital account of petitioner without evidence to support it, the sum of $144,285.75, upon the arbitrary ipse dixit of the accounting witnesses.

13. Because the Commission excluded from the historical cost of petitioner's property $1,977,150.63, a part of the amount paid by the petitioner for the property and business of the United States Electric Lighting Company.

14. Because the Commission, contrary to the testimony of every witness in the case who testified on the subject, including the witnesses introduced on behalf of the Commission itself, excluded the sum of $550,000.00 actually paid for certain special financial and organization expenses.

15. Because the Commission without evidence and contrary to law, excluded the petitioner's investment of $2,700.00 in the stock of the Electric Testing Laboratory Company, although such investment was necessary, convenient and profitable to the petitioner, and the proceeds of said investment entered into and formed a part of the gross receipts, and the privileges attached to said investment saves the petitioner annually a large sum of money which would otherwise have to be expended for operating expense.

16. Because the Commission refused to allow the petitioner its investment of $1,000,000.00 in the Great Falls Water Power Site, contrary to law and the evidence.

17. Because the Commission excluded from its valuation the value of the petitioners' investment in Graceland Cemetery land, in the amount of $116,155.80.

18. Because it excluded from the historical cost the cost of certain real estate at First Street and Florida Avenue, Northeast, amounting to $21,404.85, and certain interest on land purchased, amounting to $399.45.

19. Because the Commission excluded from the historical cost un-

amortized debt, discount and expense, amounting to $195,663.24, as of Decemmer 31, 1916.

20. Because it excluded from the same estimate the cost representing engineering, supervision and expenses shown by the evidence and amount- to $524,807.69, as of June 30, 1916.

21. Because it excluded from the same estimate cost of general administration, amounting to $322,013.32, as of June 30, 1916.

22. Because it excluded from the same estimate the sum of $7,833.23, a part of the amount paid by petitioner for the property and business of the Potomac Light & Power Company.

23. Because the Commission failed to give consideration to and allowance for costs of betterments to and renewals of the physical property of the petitioner, paid for through operating accounts.

28 24. Because the Commisssion excluded from the historical estimate of cost certain costs of canvassing, advertising and soliciting which the evidence showed were proper charges against capital.

25. Because the Commission excluded from the historical estimate the cost of installation of electric meters.

26. Because inadequate allowance was made in the historical cost and cost of reproduction for materials and supplies and working capital.

27. Because the Commission made no sufficient allowance in the historical estimate for interest during construction.

28. Because the Commission excluded from its ascertainment of the cost of reproduction new, cost and value of franchises, patent rights, and other intangibles; electric capital, land, franchises, patent rights, and other intangible and tangible capital in departments other than the electrical department of the petitioner; also the costs preliminary to organization; of promoting and of financing, as well as all property beyond the District of Columbia, and all property within the District of Columbia leading out but conveying no electrical energy for use in the District of Columbia, and much property within the District of Columbia improperly held by the Commission not to be used and useful.

29. Because the Commission in ascertaining the cost of reproduction new based its valuation of certain parcels of land included therein upon the assessed values thereof for purposes of taxation, and ignored the value of said property for the uses to which it was adapted, and used, and the testimony of witnesses introduced by the petitioner showing the value thereof.

30. Because the Commisssion, in ascertaining the cost of reproduction new, assumed contrary to the evidence an inadequate period of construction, and assumed a theory of construction that was impracticable, unfair, unreasonable and unjust.

31. Because the Commission, in ascertaining the cost of reproduction new, based the same upon certain theories of witnesses introduced by the Commission, based on so-called "normal" prices of materials, which were admitted to be neither current prices nor average prices, nor prices actually paid, nor such as would be paid by a contractor as of any given date, and upon theories that such "normal"

prices always have been and always will be the same, which theory was subsequently abandoned by its author, but was followed by the Commission, which ignored all testimony offered by the petitioner showing without contradiction prices and fair value of the property of the petitioner as of the time of the valuation.

32. Because the Commission, in ascertaining the cost of reproduction new, disallowed proper interest during construction.

33. Because, the Commission, in reaching its order, opinion and findings, gave weight to quantities and values of materials as ascertained by compromise agreed upon between the engineers of other companies and those of the Commission and ratified by the Commission in other cases, without notice to petitioner or opportunity to distinguish or rebut the same, and without
29 said compromises being introduced in evidence.

34. Because the allowance so far as made by the Commission for organization expenses does not purport to be based upon any evidence in the case, but was arbitrarily reached.

35. Because the Commission, in arriving at the cost of reproduction new, disallowed any compensation to the conceiver of the project, as well as costs of promotion.

36. Because the Commission, in arriving at the cost of reproduction new, disallowed cost of development.

37. Because the Commission, in arriving at the cost of reproduction new, disallowed property rights in easements.

38. Because the Commission, in arriving at the cost of reproduction new, disallowed certain costs for financing, brokerage and commissions.

39. Because the Commission, in its cost of reproduction new, disallowed the cost of value of the Great Falls water power site.

40. Because the Commission, in its cost of reproduction new, disallowed an amount to represent certain real estate, namely, Graceland Cemetery property, and First Street and Florida Avenue, northeast.

41. Because the Commission in its cost of reproduction new, disallowed certain amounts for structures and power plant and substation equipment.

42. Because the Commission based its findings and conclusions upon information documentary and oral, not introduced in evidence in this hearing.

43. Because the Commisssion, in arriving at the cost of reproduction new, ignored the contractual relations existing between petitioner and the Washington Railway and Electric Company, and the values resulting therefrom.

44. Because the Commission refused to permit the Washington Railway and Electric Company to intervene and become a party to these proceedings and dismissed its petition.

45. Because the Commission in reaching its findings aforesaid, ignored the fact that the stock of the petitioner is owned by the Washington Railway and Electric Company, and has been pledged under the terms of the consolidated mortgage of the last-named company, under the provisions of the Act of Congress app. June 5, 1900.

46. Because the order and opinion show that the findings of facts by the Commission are based upon testimony of witnesses taken by it in the cases of the Capital Traction Company and the Washington Gas Light Company, with which witnesses the petitioner was not confronted, whose testimony was not brought to its attention during the hearing, and which was in every sense ex parte and inadmissible against the petitioner, and was never introduced in evidence in this proceeding.

47. Because the opinion, order and findings of the Commission are not based upon testimony taken or introduced in the case of the petitioner.

48. Because the order, opinion and findings of fact of the Commission are against the weight of the evidence.

49. Because the opinion, order and findings of the Commission are contrary to the law under which said valuation is made.

30 50. Because the said determination and ascertainment and order of said Commission is inadequate, unreasonable and unlawful.

51. Because the Commission refused the request of the petitioner that it institute a proceeding in equity in the Supreme Court of the District of Columbia, petitioning the Court to instruct it as to the element or elements of value to be considered by it as provided by Paragraph 64 of the Act creating said Commission.

52. Because the findings are based upon illegal and incompetent evidence.

53. Because the Commission proceeded without due process of law, and the effect of said decision will tend to deprive the petitioner of its property without due process of law.

Plaintiff prayed that the Commission reconsider said order, decision and findings; and in event of its failure so to do, that pending the final decision of the said appeal, it would suspend the opinion and order appealed from for such a period as it might deem fair and reasonable. But the said Commission declined either to grant the plaintiff a rehearing or to suspend the operation of said Order No. 208 pending the final decision of said appeal, and on the contrary declared its purpose to proceed, notwithstanding the said appeal, to alter and fix rates to be charged the public by the plaintiff upon the basis of the valuation set out in Order No. 208.

29. The said order, opinion and findings are inadequate, unreasonable and unlawful, for the following among other reasons:

1. Because the said Commission in its conception of the law and its conduct of said inquiry miscontrued, misapplied, ignored and violated the provisions and purpose of the law under which they were acting in the following respects:

(*a*) In their directions to their subordinates charged with the compilation of the historical and reproduction cost of plaintiff's

31 property to confine their investigations to costs affecting physical property only and actually in existence on July 1, 1914, and then actually used and useful and, as to the cost of reproduction, to property then physically present in the District of Columbia;

and used for the public therein; and in the adherence of the Commission to these errors in all their subsequent steps leading up to the ascertainments embodied in said order.

(*b*) That although the Commission apparently modified its original decision that the ex parte findings of its bureau of investigations were to be taken as prima facie correct, and that the burden of proof was upon the plaintiff to disprove the same, yet the Commission in theory and in fact never receded from its said original decision that the reports of its valuation bureau were prima facie correct and entitled to probative effect accordingly, and denied probative effect and consideration to the reports and evidence on behalf of the plaintiff company except in so far as they could be compared with and showed specific errors or omissions in the ex parte reports of its valuation bureau. (Opinion p. 21, 25.)

(*c*) In that the said reports of the Commission's valuation bureau accepted and acted upon by it as above were, as admitted by the Commission in its Order #208, based at least in part upon what the said Commission designates "all available information," which information was never specified to the plaintiff, introduced in evidence, or in any other manner presented in such form that its substance or purport could be ascertained and evidence in opposition thereto presented. (Opinion pages 26 and 79).

(*d*) In requiring the engineer in charge of its engineering division to adopt as the value of the real estate of the Potomac
32 Electric Power Company the values at which the same were assessed for purposes of taxation previously placed thereon and to assess no property which was beyond the limits of the District of Columbia, and in assuming in Order #208 nevertheless to estimate, without evidence, what the value of that property was; and further in requiring the engineer in charge of its engineering division to assess no property which at the time of the inventory was not actually used for electric purposes, and in the further instruction to his witnesses as to real estate values to disregard any peculiar fitness of any of the real estate for the purposes to which it was devoted at the time of the valuation.

(*e*) In undertaking arbitrarily to fix said costs and values as of July 1, 1914, instead of at the time of the valuation as required by paragraph 7 of the Act, and for the avowed purpose of reducing the valuation below the real value at the time of the valuation because of the lower prices prevailing at the earlier period.

(*f*) In fixing rates of depreciation of the various classes of property owned by the Potomac Electric Power Company and diminishing the value of plaintiff's property by the amount of such theoretical accrued depreciation, and adopting the residue as the measure of the cost of reproduction for rate purposes without regard to the operating and service efficiency of the property for the purposes for which it was constructed at the time of the valuation.

(*g*) In that instead of valuing the property at the fair value thereof at the time of the said valuation as specifically required by Paragraph 7 of the Act of Congress, the Commission adopted the

theory that the term "fair value" as used in that section did
33 not mean "fair value" in the sense of the worth or value in money of the property, or the money cost either of construction or reproduction or what the property as a whole was fairly worth or could be sold for in money, but "a determined amount, an ascertained and fixed sum upon which the owners may earn a fair and reasonable return," and actually substituted the meaningless word "amount" for the well understood term "value" as written in the law, and then proceeded instead of ascertaining "value" "to ascertain the fair 'amount' which would represent a just basis for rates of this particular utility as of the time so determined." (See opinion of Commission pp. 98-99), thus assuming the prerogative of disregarding the correct meaning of words as used in our language in respect to which no ambiguity exists and substituting for them terms not synonymous therewith in any proper sense of those words as they are correctly used in our language.

(*h*) In that it undertook to ascertain not the fair value but the amount on which without regard to the value of the property plaintiff Company should be allowed to earn a fair return.

(*i*) In directing the chief of its accounting bureau to disregard the cost of the property and other franchises of other public utilities purchased by the plaintiff Company and devoted by it to its business within the District of Columbia, though the evidence showed that such purchases were at fair prices, upon fair terms, and to the benefit of the public as well as of the Company making the purchase.

11. The said opinion, order and findings are based upon illegal and incompetent evidence in the following particulars:

(*a*) Upon the reports of the accounting and engineering divisions of the valuation bureau respectively taken by the Commis-
34 sion without sufficient evidence to be prima facie correct.

(*b*) Upon evidence and sources of evidence not introduced in the record and indefinitely referred to by the Commission as "all available information," and upon inferences drawn by the Commission from evidence taken before it in other valuation proceedings to which other utilities in the District of Columbia were parties and to which the plaintiff was not a party, of which it had no notice and no right or opportunity to cross-examine witnesses or introduce evidence on its own behalf and which was not introduced in this proceeding. (See opinion pp. 79-80.)

III. Because in finding that the amount expended in the construction and equipment of the plaintiff Company, including the amount expended to procure its right of way, was but $9 817,686.43, when the evidence introduced showed that at least $15,642 431.02 was expended for that purpose exclusive of many proper and legitimate expenditures shown to have been made but omitted from the account by reason of the loss or destruction of evidence, as follows:

The Commission finds the historical cost of property within and without the District of Columbia used and useful for electric operations as shown in its findings on page 103 of the Commission's opinion, as of July 1, 1914, to be.....	$9,212,513.09

The Commission finds the net additions to property taken from the books of the Company from July 1, 1914, to June 30, 1916, (forming part of finding No. 9 of the Commission on page 104 of its opinion) 605,173.34

$9,817,686.43

35 The evidence proved that the historical cost of the property within and without the District of Columbia as of July 1, 1916, was at least, $15,642,431.02.

The Commission erroneously eliminated from the historical cost of property as of July 1, 1916, costs to the amount of at least $5,824,744.59, without evidence to support or justify such elimination. Said amount should be restored to and included in the historical cost of property as of July 1, 1916, as follows:—

(*a*) In that the Commission while stating on page 32 of its opinion in its summary table 10, that it eliminates under the head of "Loss on Equipment, Sold, Scrapped and Abandoned, less amount charged to operation," only $144,285.75 recorded, in fact eliminates erroneously not only this amount, but other items also recorded on the books of the company and properly charged thereon to cost of property, which with it aggregate $172,774.42

(*b*) In that the Commission in its findings on page 37 under the caption of "Franchises etc.," of the U. S. Electric Lighting Co.," eliminated from cost of property of the Company part of an amount recorded on the books of the Company and properly charged thereon to cost of property. 1,977,150.63

(*c*) In that the Commission on page 38 of its opinion under the caption "Preliminary and Organization Expenses," eliminated from cost of property, an item recorded on the books of the Company and properly charged thereon to cost of property 550,000.00

36

(*d*) In that the Commission on page 41 of its opinion ignored and excluded from consideration in summary table 11 property properly recorded on the books of the Company, under I. C. C. classification of accounts, No. 4, "Abandoned property," and properly included in cost of property..... 7,046.46

(*e*) In that the Commission ignored and excluded from consideration in summary table 11 of its opinion, Investment in Electrical Testing Lab-

oratory Stock, proven to be a proper item to be included in cost of property under I. C. C. Classification of Accounts No. 6, "Investments". 2,700.00

(*f*) In that the Commission ignored and excluded from consideration the investment in certain land described as Graceland Cemetery Property, proven to be properly included in cost of property under I. C. C. Classification of Accounts No. 6, "Investments" 116,155.80

(*g*) In that the Commission ignored and excluded from consideration in summary table 11 of its opinion, Investment in Great Falls Water Power Site, which was properly included in cost of property under I. C. C. Classification of Accounts No. 6, Investments" 1,000,000.00

(*h*) In that the Commission ignored and excluded from consideration in summary table 11, unamortized debt discount and expense, although properly recorded on the books of the Company, under I. C. C. Classification of Accounts No. 22 "Unamortized Debt, Discount and Expense", properly to be included in cost of property.... 201,174.42

37

(*i*) In that the Commission ignored and excluded from consideration in summary table 11 items recorded on the books of the Company for Engineering Superintendence and Expense, which the uncontradicted testimony in the case proved should be properly included in cost of property under I. C. C. Classification of Accounts No. E-334 "Engineering and Superintendence".... 524,807.69

(*j*) In that the Commission excluded from summary table 11 of its opinion, certain items recorded on the books of the Company for General Administration, which the testimony in the case shows should be properly included in cost of property under I. C. C. Classification of Accounts No. E-338 "Miscellaneous Construction Expenditures" 322,013.32

(*k*) In that the Commission excluded in Summary table 11 of its opinion, Interest During Construction, recorded on the books of the Company and, which, the uncontradicted testimony in the case showed should be properly included in cost of property under I. C. C. Classification of Accounts No. E-339 "Interest During Construction 163,059.03

(*l*) In that the Commission excluded from summary table 11 of its opinion certain items recorded on the books of the Company representing part of the Cost of the Potomac Lt. and

Power Company, which the uncontradicted testimony in the case showed should be properly included in cost of property 7,833.23

38

(*m*) In that the Commission in arriving at the amount to represent materials and supplies and working capital for the respondent, excluded from summary table 11 of its opinion, items shown on the books of the Company, which the uncontradicted testimony in the case showed should be properly included in cost of property 234,125.36

(*n*) In that the Commission excluded from summary table 11 of its opinion all costs for advertising, canvassing and soliciting recorded on the books of the Company, which the uncontradicted testimony in the case showed should be properly included in cost of property 295,933.97

(*o*) In that the Commission ignored and excluded from summary table 11 of its opinion certain items recorded on the books of the Company, representing betterments and improvements which the uncontradicted testimony in the case showed should be properly included in cost of property 170,963.59

(*p*) In that the Commission excluded from summary table 11 of its opinion all costs for the installation of electric meters, recorded on the books of the Company, which the uncontradicted testimony in the case show should be properly included in the cost of property under the I. C. C. Classification of Accounts No. E-326 "Electric Meter Installation" 38,013.98

39

(*q*) In that the Commission excluded from summary table 11, items recorded on the books of the Company, representing the cost of lightning arresters, which the uncontradicted testimony in the case shows should be properly included in cost of property under the I. C. C. Classification of Accounts No. E-323 "Line Transformers and Devices" 11,354.48

(*r*) In that the Commission excluded from Summary Table 11, items recorded on the books of the company, representing the cost of land at 1st and Florida Avenue, and the interest thereon, which the uncontradicted testimony in the case shows should be properly included in "Cost of Property" 21,804.30

(*s*) In that the Commission excluded from Sum-

mary Table 11, items recorded on the books of the Company, representing the cost of construction work in progress, which the uncontradicted testimony in the case shows should be properly included in "Cost of Property" 7,833.91

The Commission committed error in finding the historical cost of property within and without the District of Columbia as of July 1, 1916, and failed to give any consideration whatsoever to certain items which, from the uncontradicted testimony in the case should be included in the "Cost of Property" and therefore, eliminated from the capital accounts, without any evidence to support the following items, to-wit:

Betterments and Improvements which have been charged directly to Operating Expense Accounts; Increases in the cost
40 of certain items of Construction and Equipment, due to the renewals of said items and on allowance to represent cost incurred for Taxes and Insurance during Construction.

IV. Because in finding that the amount of money it would require to secure the right of way, reconstruct the conduits, subways, poles, wires, switchboards, exchanges, offices, works, storage plants, power plants, machinery, and any other property or instrument not included in the aforegoing enumeration used in or useful to the business of such public utility and to replace all the physical properties belonging to the public utility, was but $11,090,228.78, when the evidence showed that at the date of said ascertainment it would have required at least the sum of $23,235,387.00 to secure, reconstruct and replace said property, exclusive of many items of cost omitted by reason of the impossibility of ascertaining with certainty the existence of many items of property or the cost thereof in part, as follows:

(*a*) In excluding from consideration in its ascertainment all prices, costs and values current as of the time of said valuation and in using in lieu thereof prices shown by the evidence without dispute not to be current prices, fair prices or normal prices as of the date of the valuation, but much below such normal current prices.

(*b*) In excluding any allowance for the easements of the company in its rights of way, when under the evidence there should have been allowed therefor at least $2,500,000.00.

(*c*) In making no allowance under Account #304 for Development Cost or Other Intangible Capital, and forbidding its engineers to make estimates or allowance therefor when there should have been allowed therefor at least $2,115,323.00.

41 (*d*) In omitting entirely all allowances or estimates under subdivisions of Account #333, Other Tangible Electric Capital for items shown by the evidence, as follows:

Preliminary Operation	50,000
Financing	60,000
Compensation to Conceivers and Promoters	650,000
Preorganization Expense	25,000
Brokerage and Commissions	700,000
Great Falls Water Power site	1,000,000

(*e*) In allowing for the cost of reproduction of the land of the company but $433,792.00 as of December 31, 1916, without any evidence as to its value as of that date, whereas under the evidence at least $830,967.44 should have been allowed.

(*f*) In excluding from said estimate all allowance and compensation for a general contractor's services, when under the evidence the services, organization and equipment of a general contractor would have been necessary.

(*g*) Because it excludes allowance for and prohibited its engineers from making estimates of "Legal, Organization and Franchise Expense" of any kind, when allowances of this character to the extent of at least $262,542.00 should have been made therefor.

(*h*) In allowing but $96,135.00 plus the $2,613.17 added by the Commission to the Pillsbury allowance in partial compensation for the many errors and omissions in the Pillsbury estimate proven to the satisfaction of the Commission, as the cost of reconstruction new of the General Structures of said company under Account #305 as of December 31, 1916, without any evidence to support such a finding as of that date, whereas at least the sum of $197,121.00 should have been allowed.

42 (*i*) In allowing but $72,131.52 as the cost of reproduction new of the General Equipment of the Company under Account #306 as of December 31, 1916, without evidence to support such a finding as of that date, when at least $97,185.01 should have been allowed.

(*j*) In allowing for the cost of reproduction new as of Dec. 31, 1916, under Account #308, but the $532,752.00 allowed by the Pillsbury report, plus the $20,266.05 added thereto by the Commission as the result of errors and omissions demonstrated to its satisfaction in the Pillsbury inventory, with no evidence upon which to base such a finding as of that date, when $725,973.00, plus $300,000.00 since spent on Bennings extension, making a total of $1,125,973.00 should have been allowed therefor.

(*k*) In allowing under Account #310 the cost of reproduction new of Steam Engines and Turbines as of Dec. 31, 1916, with no evidence in support thereof as of that date, only the sum of $555,041.00, whereas, under the evidence the sum of $1,053,658.67 should have been allowed.

(*l*) In allowing under Acct. #315, Accessory Electric Power Equipment, as the cost of reproduction as of Dec. 31, 1916, but $85,396.98, with no evidence to support such a valuation as of that date, when at least the sum of $175,534.74 should have been allowed.

(*m*) In allowing under Acct. #316 the sum of $25,883.90, plus only $19,954.64 added by the Commission to the Pillsbury finding as the result of errors demonstrated to the satisfaction of the Commission, making a total of $45,838.54 for the cost of reproduction new as of Dec. 31, 1916, without any evidence to support such a valuation as of that date, when at least the sum of $69,471.86 should have been allowed.

43 (*n*) In allowing under Acct. #317, Substation Buildings, for the cost of reproduction new thereof as of Dec. 31, 1916,

but $120,627.00 allowed originally in the Pillsbury report, plus $1,127.26 added thereto by the Commission as the result of errors demonstrated in the Pillsbury inventory, with no evidence to support such a valuation for any of said property as of that date, when at least the sum of $172,588.00 should have been allowed therefor.

(*o*) In allowing under Acct. #318, Substation Equipment, as the cost of reproduction thereof new as of Dec. 31, 1916, but $967,-178.87, plus but $2,648.08 added to the Pillsbury report by the Commission as the result of errors demonstrated therein, with no evidence to support such a finding as of that date, when at least $1,378,465.08 should have been allowed.

(*p*) In allowing under Acct. #319, Poles and Fixtures, but $88,-030.68 as the cost of reproduction thereof new as of Dec. 31, 1916, with no evidence to sustain such a value as of that date, when under the evidence the sum of $158,908.43 should have been allowed.

(*q*) In allowing under Acct. #320, Underground Conduit, as the cost of reproduction new as of Dec. 31, 1916, the sum of but $1,605,304.87, with no evidence to sustain such a valuation as of that date, when at least the sum of $2,120,963.50 should have been allowed.

(*r*) In allowing under Acct. #321, Transmission System, but $386,466.56 as the cost of reproduction new as of Dec. 31, 1916, with no evidence to support such a finding as of that date, when there should have been allowed at least the sum of $850,587.84.

(*s*) In allowing under Acct. #322, Distribution System,
44 the sum of only $1,332,119.44 as the cost of reproduction new as of Dec. 31, 1916, with no evidence to support such a finding as of that date, whereas the sum of $2,167,929.57 should have been allowed.

(*t*) In allowing under Acct. #323, Line Transformers and Devices, as the cost of reproduction thereof new as of Dec. 31, 1916, but $128,082.60, with no evidence to support such a finding as of that date, when under the evidence at least the sum of $156,142.21 should have been allowed.

(*u*) In allowing under Acct. #324, Electric Services, as the cost of reproduction thereof new as of Dec. 31, 1916, only $440,-308.01, with no evidence to support such a finding as of that date, when under the evidence the sum of at least $658,174.74 should have been allowed.

(*v*) In allowing under Acct. #325, as the cost of reproduction thereof new of all Electric Meters (including those actually in service as well as those in stock), as of Dec. 31, 1916, but $292,037.-71, with no sufficient evidence to justify such a finding as of that date, when in fact under the evidence the Commission should have allowed as of July 1, 1916, the sum of $362,038.75 for electric meters in service alone.

(*w*) In allowing under Acct. #326, Electric Meter Installation, as the cost of reproduction new as of Dec. 31, 1916, the sum of only $20,746.44, with no sufficient evidence to justify such a finding as of that date, when there should have been allowed at least the sum of $33,880.16.

(*x*) In allowing under Acct. #327, Public Lighting System, as the cost of reproduction thereof new as of Dec. 31, 1916, but $301,569.30, with no sufficient evidence to justify such a finding as of that date, when under the evidence there should have
45 been allowed the sum of at least $589,855.84.

(*y*) In allowing under Acct. #332, Electric Laboratory Equipment, as the cost of reproduction thereof new, but $9,593.93, the sum originally incorporated in the Pillsbury report, plus $7,256.80 added thereto by the Commission as the result of errors demonstrated to its satisfaction, making a total of $16,850.73 as the value as of Dec. 31, 1916, with no evidence before it to justify such a valuation as of that date, when under the evidence at least the sum of $17,385.20 should have been allowed.

(*z*) In allowing under Acct. #333-A, Electric Signs, but $3,423.95 as the cost of reproduction thereof new as of Dec. 31, 1916, with no sufficient evidence to justify such a finding as of that date, when under the evidence there should have been allowed at least the sum of $6,004.32.

(*aa*) In allowing under Acct. #334, Engineering Supervision and Inspection and in Acct. #338, Administration, as the cost of reproduction thereof, including in Acct. #334 Engineering and Superintendence, and in Acct. #338 Administration, including Omissions and Contingencies and Insurance (See opinion pp. 58-59), the sums of $409,750.00 and $494,353.00 respectively, plus $2,948.00 and $3,775.00 respectively, added thereto by the Commission as the result of errors demonstrated to its satisfaction, which includes all omission and contingencies and insurance other than liability insurance, and all engineering and superintendence as well, which omissions and contingencies, detail engineering, designs and specifications and all insurance should properly be and in the Almert report were included in the several accounts chargeable to primary cost of the different classes of physical property and distributed among them, and which if done would amount
46 to much in excess of the two sums stated, whereas there have been allowed for the engineering staff of the company alone the sum of $135,000.00 under Acct. #334, and the sum of $180,000.00 for Administration during Construction only, in addition to the items above mentioned of omissions, contingencies, detail engineering, designs and specifications, and all insurance, which in the Almert estimate was distributed and specifically allocated to the different classes of physical property upon and for which these expenses were incurred. (See opinion pp. 58-59.)

(*bb*) In allowing under Acct. #337 for Taxes during Construction, the sum of $39,211.00, plus $495.00 added thereto by the Commission as the result of omissions in the Pillsbury report proven to its satisfaction, other than those voluntarily acknowledged by Mr. Pillsbury, whereas under the evidence there should have been the sum of $131,271.00 added for this purpose.

(*cc*) In allowing under Acct. #339 for Interest during Construction the sum of but $652,352.00, plus $4,429.00 added by the Commission as of Dec. 31, 1916, with no sufficient evidence in the rec-

ord to justify such an estimate as of that date, whereas under the evidence in the record there should have been allowed under this account the sum of $1,791,644.00.

(*dd*) In allowing under Acct. #8, Arcs, Transformers and Meters in Stores and Supplies, for the cost of reproduction thereof new as of Dec. 31, 1916, the sum of $128,893.08 only, with no sufficient evidence to justify such a finding as of that date, whereas under the evidence there should have been allowed at least the sum of $172,084.89.

(*ee*) In allowing under Acct. #333-*b*, Working Capital, the sum of $135,000.00 as of Dec. 31, 1916, without any evi-
47 dence to justify such a finding as of that date, whereas under the evidence there should have been allowed at least the sum of $378,396.71.

V. Because it found the fair value of the property of the Potomac Electric Power Company to be but $11,231,170.43 as of December 31, 1916, without any evidence of such value on that date, instead of $23,235,387.00 at least, notwithstanding the omission of many elements of value because as shown by the evidence of the difficulty of valuing them with sufficient certainty for the purposes of legal proof.

VI. Because the statute under which the said valuation was made is contrary to the Constitution of the United States and to natural right and justice—

In that it imposes conflicting and incompatible duties upon the said Commission in imposing legislative, executive and judicial function upon the members of the said Commission in making them judges in matters in which they have special official interest counter to the interest of the utilities whose property rights and interests they are required to pass upon;

VII. Because of each of the reasons of dissatisfaction specified in the Notice of Dissatisfaction with the Commission on the 6″ day of June, 1917, and herein before set out at length.

Prayer.

Wherefore the premises considered, the plaintiff prays:

1. That a writ of subpœna issue out of the Clerk's office of this Honorable Court, directing the defendants, The Public Utilities Commission of the District of Columbia, a Corporation, Oli-
48 ver P. Newman, John G. D. Knight, and Louis Brownlow, Commissioners of the District of Columbia, and as such constituting the said Public Utilities Commission of the District of Columbia, and the Washington Railway and Electric Company, a corporation, and each of them to appear herein on a day certain and answer the exigencies of this Bill.

2. That pending a final hearing of this suit, the said defendants and each of them, and their successors, their agents, officers and employes be enjoined and restrained from proceeding with reference to the matters herein complained of, and from enforcing or at-

tempting to put into operation any rates, tariffs, tolls or charges with respect to the Potomac Electric Power Company based on the valuation aforesaid.

3. That this Honorable Court declare the valuation ascertained by the Public Utilities Commission of the District of Columbia in its Order No. 208 to be unlawful, inadequate and unreasonable, and by proper decree vacate, set aside and annul the said valuation.

4. That much other relief be granted the plaintiff as the nature of the case may require and to this Honorable Court may seem meet and proper.

POTOMAC ELECTRIC POWER COMPANY,
By CLARENCE P. KING,
President.

S. R. BOWEN,
JNO. S. BARBOUR,
CHAS. A. DOUGLAS,
J. J. DARLINGTON,
Counsel for Plaintiff.

DISTRICT OF COLUMBIA, *ss:*

Clarence P. King, being duly sworn according to law, on oath depose and say, that I am President of the Potomac Electric
49 Company; that I have read the foregoing bill by me subscribed and know the contents thereof; that the matters and things therein stated as of my personal knowledge are true and those stated upon information and belief I believe to be true.

CLARENCE P. KING.

Subscribed and sworn to before me this 30 day of July, 1917.
[SEAL.] J. E. TENLY,
Notary Public, District of Columbia.

"EXHIBIT #1."

Public Utilities Commission of the District of Columbia.

May 2, 1916.

Potomac Electric Power Company,
Washington, D. C.

GENTLEMEN:

The Commission is sending to you under separate cover, this date, certain summaries of the Cost of Reproduction of the property of your Company made by the Engineering branch of the Valuation Bureau. The Commission expects to proceed with as little delay as possible to set a date for hearing on the valuation of your Company as required by law, but before doing so desires to confer with your representatives concerning procedure and any other matters

relative to the valuations which may suggest themselves. In order to give your Company sufficient time to consider this phase of the law as well as to study the data furnished herewith, the Commission will set the date for conference in the office of the Chairman
50 of the Commission at ten o'clock a. m., on Wednesday, May 10, 1916, if this date is agreeable to your representatives.

By direction of the Commission:

(Signed) J. L. SCHLEY,
Executive Officer.

Answer of the Public Utilities Commission et al.

Filed August 15, 1917.

* * * * * * *

The defendants, the Public Utilities Commission of the District of Columbia, and Oliver P. Newman, John G. D. Knight, and Louis Brownlow, constituting the said Commission, for answer to the bill of complaint herein exhibited, and to the rule to show cause herein entered, or to so much thereof as they are advised it is material that they should answer, answering say:

1. They admit the allegations of paragraph one.

2. Answering paragraph two they aver that the defendants, Oliver P. Newman, John G. D. Knight and Louis Brownlow, constitute the Public Utilities Commission of the District of Columbia in accordance with the Act of Congress mentioned in said paragraph. They admit that the defendant, the Washington Railway and Electric Company is a corporation created as set forth in said paragraph and that it is a public utility within the terms of the Act of Congress aforesaid, and they refer the Court to the Act of Congress, approved June 5th, 1900, as to the extent and power of said company to hold the stock of other utilities in the District of Columbia, and such other corporate rights and privileges it may legally exercise. According to the best of the defendant's
51 information and belief the said railway company holds all of the capital stock of the complainant company. These defendants neither admit nor deny that the plaintiff has a contract with the Washington Railway and Electric Company for electric power received by said railway company, but demands strict proof thereof should the same be material. According to the best of defendants' knowledge and belief, the Washington Railway and Electric Company has guaranteed certain bonds of the said plaintiff company but to what exact amount the defendants were not advised. Further answering said paragraph the defendants herein now challenge the right of the complainant to make the said Washington Railway and Electric Company a party defendant in this proceeding, and aver that no such right is given to the complainant under section eight of the Act of Congress of March 3d, 1913, known as the Public Utilities Law.

3. The defendants admit the allegations of paragraph three.

4. The defendants admit the allegations of paragraph four, except the statement of said paragraph that the Commission at the time of the conference therein described assumed that the cost of reproduction in the summaries mentioned were *prima facie* correct and that the burden was on the complainant to point out any errors or omissions and to show by proof that said summaries were in any respect erroneous; all of which the defendants deny and aver, on the contrary, that said summaries were sent to the complainant to give it as clear and comprehensive information as possible as to the work done by the Commission, and to enable it to call the attention of the Commission to any errors which it might detect or discover in the same, which they aver the complainant refused to do.

52 5. Answering paragraph five defendants say that it substantially set forth the contents of its order No. 182, a copy of which is found in the record on page two, but asks that said order may be read in full as a part of this answer, and refers the Court to the same for further answer to the paragraph, and all conclusions of law therein contained.

6. Defendants admit the allegations of paragraph six.

7. Defendants admit the allegations of paragraph seven.

8. Defendants admit that on July 3d, 1916, the plaintiff company filed an amendment to its answer as set forth on pages 87 to 90, of the transcript of the record, and that the Commission thereafter authorized the plaintiff company to issue bonds as set forth in said paragraph.

9. Answering paragraph nine these defendants admit the allegation of said paragraph.

10. These defendants admit the allegations of Paragraph 10, except as to the statement that the accounting report of the witness, Andrew Sangster, was adopted prima facie by the Commission, which they deny.

11. Answering Paragraph 11, these defendants neither admit nor deny the conclusions of the plaintiff set forth therein as to the testimony of William P. Richards, but refer the Court to the Record as to the same. These defendants admit that the plaintiff ruled to exclude from the Record the testimony of this witness for the reason set forth in said Paragraph, and that this motion was overruled and exception taken.

12. These defendants admit the allegations contained in Paragraph 12, with reference to the testimony of Edward W. Bemis, and its retention in the Record by the overruling of the motion to exclude the same as set forth in said Paragraph.

53 13. These defendants admit the allegations contained in Paragraph 13, but for more specific information, refer the Court to the testimony of the witness, Kappeyne, as contained in the Record.

14. Answering Paragraph 14, these defendants deny the allegations contained in Paragraph 14, that the aforegoing was all of the

evidence introduced by the Commission as set forth in said Paragraph, unless the plaintiff means that those portions of the Record referred to contain all of the evidence which was introduced to sustain the reports of the Commission's engineers' accounts and real estate experts, and states that the Record will show that no further evidence was introduced by the Commission at that time except that contained in the record which will be before the Court at this hearing. These defendants admit that no evidence was offered as to judicial or other sales by the plaintiff of property or franchises purchased or acquired by the plaintiff, or the amount paid therefor and avers that it was not necessary that it should do so as all sales are reported to the Commission in the annual reports of the plaintiff, and it expressly denies all and singular the allegations contained in the remainder of said Paragraph.

15. Answering paragraph fifteen the defendants aver that none of the reasons set forth by the plaintiff in subheadings "*a*" and "*b*" are justified by the evidence taken, and deny the same, and deny absolutely that the evidence taken was insufficient in any respect. The reasons given in detail in sub-headings "*a*" and "*b*" are not sustained by the record, and when specific claims have been made as based thereupon, the same are hereinafter fully discussed and answered.

16. Answering paragraph sixteen the Commission admits
54 that the plaintiff made the motion to dismiss, set forth in paragraph sixteen.

17 to 24. These defendants admit that the witnesses mentioned in paragraphs seventeen, eighteen, nineteen, twenty, twenty-one, twenty-two, twenty-three and twenty-four, testified substantially as therein set forth, but refers to the record for a more accurate and detailed statement of their testimony.

25 and 26. These defendants admit that they recalled the witness Kappeyne; but deny the conclusions drawn by the plaintiff from the testimony of said witnesses and aver that its said denial will be supported by the record of the testimony in this case.

27. Answering paragraph twenty-seven these defendants annex hereto and pray that there may be read as a part of this answer a copy of their formal order No. 208, which sets forth fully and in detail the conclusions of the Commission as to the value of the property of the plaintiff which they were required by the law to make, and admit that a copy of this order was served upon plaintiff on the 18th day of May, 1917.

28. These defendants admit that on the 6th day of June, 1917, the plaintiff filed with the Public Utilities Commission a memorandum of dissatisfaction and intention to appeal as set forth in said paragraph, and that the Public Utilities Commission refused to reconsider or to suspend its said order pending the final decision of the contemplated appeal.

29. Answering Paragraph 29. defendants say they are advised that the same largely consists of conclusions of law which it is not necessary for them to answer, but deeming that the Court may think

some answer thereto advisable along general lines defendants
55 say:

(*a*) Charge of error in the directions of the Commission to their subordinates is vague and indefinite and no directions are pointed out as being in error and no specific directions are designated in which error was made, and the defendant denies that any error was made as is therein vaguely charged. They aver that intangible property of the plaintiff was urgently and earnestly presented for valuation and the defendants gave full and careful consideration to this aspect of the valuation of the plaintiff's property, as elsewhere discussed in this answer. (See Opinion, page 87, et seq.). That the date, July 1st, 1914, was selected as a convenient date which would permit a reasonable time to elapse for investigation and report of the plaintiff's property and that at a time when prices were more or less normal and not unduly increased by reason of the existence of a state of war, as will be more fully explained in the opinion of the Commission at page 102. The defendants made due allowance for additions to the property of the plaintiff, between July 1, 1914, and December 31, 1916, as will appear by reference to the findings of the defendants at page 104 of their opinion. (For detailed list of property added, see page 63 of the Opinion.) Defendants deny that in the case of reproduction any property physically present in the District of Columbia was omitted that was actually used and useful in electrical operations, for the convenience of the public.

(*b*) The original reports made to the Commission by its Valuation Bureau, prior to the date set for hearings were, as above stated, merely preliminary and tentative, and were understood so to be by both parties, and were greatly modified and corrected by the testimony subsequently adduced, and no impediments whatever,
56 were placed in the way of the plaintiff in producing all of the evidence it desired upon all of the questions presented. Defendants deny that they did not give probative effect and consideration to reports in evidence on behalf of the plaintiff, but on the contrary aver that many items set up by the plaintiff were accepted by the Commission, but where no reasons were given to support other items they were disallowed in some instances, and where there was a disagreement between the plaintiff's engineers and accountants the Commission arrived at an estimate of the true and just values of such items after a careful consideration of all of the elements involved.

(*c*) The charges contained in Paragraph (*c*) are vague and undefined, and no particular instances are specified wherein the Commission made any findings which were not justified by the evidence in the case. Reference is made in said Paragraph to pages 26 and 79 of the Commission's opinion. The Commission is content with this reference and with the additional reference to the 5% added, found on page 80, and prays it may be read in connection herewith.

(*d*) Defendants deny that they required their engineer to adopt as the value of the real estate of the plaintiff the values at which same were assessed. On the contrary, defendants say that they arrived at a determination of values of the real estate after consideration of the testimony of the Assessor and of the testimony given by

the witnesses on behalf of the plaintiff; that no such property of the plaintiff, beyond the limits of the District was included in the final valuation; that no property of the plaintiff, not actually used and useful for electrical purposes was included in the final valuation.

Further, defendants deny that they disregarded any peculiar
57 fitness of the real estate for the purposes to which it was devoted, but allege on the contrary certain items of real estate were allowed an increased valuation for this very reason. Reference is had to the opinion of the Commission on pages 43, 61, and 62, which it is prayed may be read in connection herewith.

(*e*) Defendants say that they fixed upon the date of July 1, 1914, for the purposes of valuation for the reasons hereinbefore set forth, and because it was absolutely necessary to set a fair and convenient date, as to which a valuation, which it was contemplated would consume over a year in making, should be referable.

(*f*) Defendants say that the amount of the theoretical accrued depreciation of the plaintiff's property might have been deducted by the defendants without affording just ground for legal criticism, but the fact is that the defendants deducted considerably lesser amounts, as will be seen by reference to pages 103 and 104 of their opinion and aver that such deduction was lawful and fairly and reasonably made.

(*g*) Defendants deny that they have placed any unusual or ambiguous meaning upon the word "amount" as used in their opinion, but they say that the word was there used as being the equivalent of the term "fair value" in the law, and as being consonant with the practice of Public Utilities Commissions and in accordance with the decisions of the Courts. Reference is had to pages 86, 98, and 99, and 101, of the opinion of the Commission. Further defendants say that reference to pages 103 and 104 of said opinion will show defendants found the fair value of the property.

(*h*) Defendants refer to the statement made above in answer to Paragraph (*g*).

58 (*i*) Defendants deny the allegation of Paragraph (*i*), and allege on the contrary, that they did allow the cost of property and franchises of the public utilities purchased by the plaintiff when they thought such cost should be allowed as will appear by reference to pages 19 and 36 of its opinion.

29 II. Answering Paragraph 29 (II), *a* and *b*, defendants deny that any of their findings were based upon illegal or incompetent evidence, but on the contrary aver, as hereinbefore set forth, that their findings were based on all of the evidence taken in the case and not upon inferences from other proceedings; and further aver that there is no specific mention or designation of any instance in which the commission made any finding not based upon evidence brought before them in the hearing, nor is there any specification of any finding made by the Commission upon which the plaintiff was not allowed and given a full and fair opportunity to present all of the evidence that it desired.

29 III. Defendants were of the opinion after careful consideration of all of the testimony adduced that their finding of the value

of the plaintiff's property was fair, just and reasonable, notwithstanding that the plaintiff claimed a value largely in excess of the sum found.

(*a*) Defendants deny that the amount of $172,774.42 for the loss of equipment, sold, scrapped, or abandoned has been eliminated erroneously. The Commission in its consideration of the testimony restored many items to plant account upon evidence produced by the plaintiff, but the net amount remaining of $144,285.75 was not shown to have been erroneously eliminated. The evidence will show that every claim of the company where the correctness
59 of any elimination was questioned and where proof was given to show that the property was still existant, has been allowed by the Commission.

The difference of $28,488.67 between the amount stated by the plaintiff to have been eliminated and that shown in the opinion, Table 10, page 32, consists of profit on the sale of real estate. This profit has been carried in the plant account of the company and tended to reduce the actual investment. In order that the historical cost should be fully stated, this profit was taken out of the plant account and used to reduce the total amount to be eliminated by reason of other property included in the plant account that is not now in existence. Pages 31 and 32 of the Opinion discusses this elimination and is prayed to be read in connection herewith.

(*b*) The defendants deny that they have eliminated for the cost of property of the plaintiff an amount of $1,977,150.63; on the contrary, they aver that they show in their opinion, page 41, this amount as having been paid by the plaintiff, but have set it up separately from the cost of property used and useful for the convenience of the public. This amount represents an arbitrary increase in value of certain property purchased from the United States Electric Light Company, and is wholly fictitious in its nature. Reference is had to Page 37 of the opinion of the Commission, and page 41.

(*c*) Defendants deny that they eliminated the sum of $350,000 from the cost of property as alleged, but set it up separately, and they say they did consider the same as being an entirely improper item to be allowed as against the public in a rate making proceeding as explained on pages 37 and 87 of the opinion of the Commission.

60 (*d*) This item does not represent the cost of any existing physical property. It was property that had gone out of existence prior to the period of valuation and could not be classified either as used or useful for electrical purposes or properly included in the cost of reproduction, and is simply a book account to be considered in final conclusions as to fair value.

(*e*) This item represents shares in the electrical testing laboratories. Plaintiff company receives a dividend of 10% on this stock and the Commission did not consider it just that it should be added to the final valuation in such manner that it would be a permanent charge against the public, as the basis for a further return to the investor.

(*f*) This item refers to the exclusion of the property known as

Graceland Cemetery, which property is not used by the plaintiff company at the present time for any purposes, but which is merely held as an investment and so recorded on the books of the plaintiff. This was not considered a proper item in the valuation of the plaintiff's property. Reference is had to pages 40 and 61 of the opinion of the Commission.

(*g*) The item of $1,000,000.00, investment in the Great Falls Water Power site was very carefully considered by the Commission and was excluded from valuation because of the reason that it was not actually used or useful for electrical purposes, as will appear by reference to pages 83, 84 and 85 of the Commission's Opinion.

(*h*) This item is for brokerage commissions and discounts incurred in the financing operations of the company and while it does not represent any physical existing property and is not properly
61 allowable in and should not be included in the cost of the property, it is an asset of the company to be properly considered in the fixing of rates, where it was so considered.

(*i*) The full amount of the item claimed does not appear upon the books of the Company in any shape whatever, under this heading, except to the extent of $95,637.40, which, as appears on pages 33 and 40 of the Commission's Opinion is allowed in full. The residue of the item is a mere estimate and an attempt to capitalize certain operating expenses alleged to have been incurred by the Company, and which was by it charged to operating expenses, and no evidence was adduced to show that this item was improperly carried on the books of the Company as an operating expense.

(*j*) This item does not appear upon the books of the Company in any form whatever, under "general administration" and is merely an attempt to capitalize certain operating expenses as set forth in the previous paragraph, and as discussed in the opinion of the Commission, pages 33 and 34.

(*k*) The defendants deny that they have excluded from the findings of the Company's property an item for interest during construction; on the contrary they aver that they have made full allowance for all interest during construction. Not only have they allowed for the total interest of this nature recorded on the books of the plaintiff, amounting to $150,006.28, but an additional sum of approximately $90,000, making a total of $240,000. The amount claimed in this Paragraph represents a difference between the plaintiff's estimate and the Commission's allowance. The method of determining the amount of $240,000, as allowed by the Commission is fully set forth on pages 34 and 35 of the Opinion of the
62 Commission. The statement of the plaintiff that this estimate for interest during construction appears on the books of the Company as such, is incorrect. Out of the plaintiff's claim of $403,059.03, only $150,006.28 is recorded on the books as interest during construction.

(*l*) The Commission included in its cost of property all of the amounts claimed upon the books of the plaintiff paid by it for the property and franchises of the Potomac Light and Power Company,

amounting to approximately $270,000, although physical property to the amount of only about $61,000 could be traced. The item claimed appears upon books of the Potomac Light and Power Company as an item of profit and loss not representing any physical property and the origin of which was not further traceable, as fully set forth on pages 36 and 37 of the Opinion of the Commission.

(*m*) Defendants deny that they excluded from consideration any items on the books of the Company, which it was shown should have been properly included as the cost of property and they aver that allowances for working capital, materials and supplies are estimates at best, resting largely in opinion and judgment and the Commission in making such allowances considered the question from every standpoint and made a fair and reasonable allowance. The item claimed is the difference between the allowance made by the Commission and the amount claimed by the plaintiff and represents simply a difference of opinion between the plaintiff and the defendant. Reference is made to page 39 of the Opinion.

(*n*) The Interstate Commerce Commission classifies accounts of this nature as operating expenses and not as capital charges. They form no part of the amount of money expended on physical property and were therefore properly excluded.

(*o*) This sum representing a great number of relatively
63 small items appears upon the books of the plaintiff as operating expenses and the present claim is an attempt to capitalize these expenses for the purposes of valuation.

(*p*) This item was charged by the company to operating expenses and was so treated by the Commission and was not included as part of the historical cost. Reference is had to page 29 of the opinion of the Commission.

(*q*) The Commission made ample allowances for devices and allowed in full all that appeared upon the books of the plaintiff with an additional allowance of over $16,000. The item claimed in (*q*) did not appear upon the books of the company and was not substantiated by any evidence adduced before the Commission, all of which is set forth in the opinion of the Commission, page 28.

(*r*) This item was excluded as property not used by the plaintiff for any purpose. The reasons are more fully stated on page 22, of the Commission's Opinion.

(*s*) This item did not appear upon the books of the Company at the date set for the valuation and was not substantiated by any evidence produced before the Commission. The Commission allowed for construction in progress the full amount shown on the books of the Company. Opinion, page 35.

Defendants are unable to answer the concluding Paragraph of 29 III, because of the vagueness and indefiniteness thereof, no particular items and no particular specifications being set out and it denies all of the allegations of the same.

29 IV. The defendants deny the allegations of the plaintiff company that the evidence in the case of the valuation of the property of the said plaintiff company shows that the cost to reproduce

the said property is $23,000,000.00. The defendants aver
64 that the evidence shows that the amount claimed by the plaintiff is based largely on inflated war prices for property purchased at much less rates; that it includes large items of a purely hypothetical nature, for which no expenditures were ever made by the plaintiff company; that it exceeds by approximately $10,000,000.00 the amount found on the books of the plaintiff company by the defendants to have been expended on the entire property of said plaintiff, even including items of expense which the defendants believe should not be considered in the fair value of the plaintiff company for rate making purposes. (Opinion Page 41.) And the defendants aver that the amount of $11,090,220.79 is a fair and reasonable reproduction cost of the property of the company, as of July 11, 1914, as is set forth in full in the Opinion.

(*a*) Defendants say that July 1, 1914, was fixed by them as the date of valuation of the plaintiff's property, and that the prices, costs and values applied to the property then in existence were derived from studies of prices extending over many years for material fluctuating in price. Current prices as of the date of valuation were used for all items not fluctuating greatly in price, and that together the prices used represented normal prices as of the date of valuation; that all property added subsequent to that date was *allotted* for at the actual price paid for the same. Reference is made to pages 47 and 74 of the Commission's Opinion, where this matter is discussed.

(*b*) Defendants say that no allowance was made for easements claimed by the plaintiff for the reasons in full set forth in the Commission's Opinion, page 89.

(*c*) Defendants deny that they made no allowance for
65 development cost or other intangible capital, but on the contrary aver that full, proper and just allowances were made under both of these heads, as will appear by reference to their opinion on pages 87, 88, and 89.

(*d*) Defendants deny that they omitted entirely allowances for other tangible electrical capital as alleged, but on the contrary aver that they did make such allowance as follows; for Preliminary Financing, $25,000, opinion page 82; for Financing, Pre-organization, Legal Organization and Franchise Expenses, the Commission allowed the sum of $250,000, in lieu of $347,542, claimed by the Company, as will appear from pages 81 and 82 of its Opinion; claim for $650,000 for compensation to conceivers and promoters was disallowed as such, although allowances were made in other ways as will appear by reference to pages 87 and 88 of the opinion; that the same remarks apply to the claim for brokerage and commisisons; claim of $1,000,000 for the Great Falls Water site was disallowed in the final finding of fair value for the reasons hereinbefore set forth and more fully set out on pages 83, 84 and 85 of the Opinion.

(*e*) Defendants say that the amount allowed for the cost of reproduction of the land was the amount arrived at by them under

all the evidence according to their best judgment, as of July 1, 1914, and was a fair and just allowance.

(*f*) Defendants admit that they made no allowance or compensation for general contractors' services as claimed by the plaintiff, but aver they did make allowance for contractors' organization expenses, and profits on each unit of the work, which method, in the opinion of the defendants, was a just and practical method of procedure, as will appear by reference to pages 46, 54, 69 and 70, of the opinion.

66 (*g*) Allowances were made for legal organization and franchise expenses as set forth above in Paragraph 6, and such allowances were fairly and justly made.

(*h*) to (*z*), inclusive. The items claimed in these paragraphs for errors or omissions presented to defendants at the hearings were vague and indefinite and based upon conjecture merely, with no reasons whatever stated for most of the items presented and were based upon valuations as of the date of December 31, 1916, at a time when prices were abnormally inflated, instead of the date of July 1, 1914, fixed by the Commission, and for property inventoried after a lapse of two years, and which contained many items allowed by the Commission, for addition to property acquired after July 1, 1914. However, the defendant made due allowance for such items as in its judgment should have been granted, as will appear by reference to pages 59 and 60 of its opinion.

(*aa*) The defendants deny that there should have been allowed for the engineering staff of the plaintiff company and for administration during construction the sums mentioned in Paragraph (*aa*) and aver that these claims arise from the different theories of cost of reproduction adopted by the defendants and by the plaintiff. Allowances were made under both theories for the items mentioned, but as they were included under different heads they cannot readily be compared. The allowances made by the defendants are discussed on pages 58 and 59 of their opinion, are just, fair, and reasonable and follow logically the theory of reproduction adopted by them.

(*bb*) The method of compiling taxes during construction as shown by the plaintiff was theoretical and not applicable to the District of Columbia and based upon its own theory of re-

67 production. The theory of compilation adopted by the Commission was based upon the method of taxation now in existence in the District of Columbia as will be seen by reference to page 70 of its Opinion, and was fair, just, and reasonable.

(*cc*) The claim for interest during construction arises out of the different theory of reproduction adopted by plaintiff which was not followed by the defendants as herein before stated. The theory adopted by the plaintiff contemplated a five-year period for construction while the Commission adopted a three-year period as will be seen by reference to page 70 of its Opinion.

(*dd*) The items claimed in this Paragraph were allowed by the defendants under different accounts as will appear by reference to page 80 of its Opinion, though not to the full extent claimed by

the plaintiff, and the defendants aver that these allowances were just, fair, and reasonable.

(*ee*) Defendants say that they allowed under working capital what they considered a full, fair, and just amount upon all of the evidence presented to them at the hearings.

V. Defendants say that this is a general summing up of the aforegoing claims in the final finding of the defendant of the valuation of the plaintiff's property, which have been hereinbefore fully answered.

VI. Defendants say that this Paragraph is an attack upon the constitutionality of the Act creating a Public Utilities Commission which the defendants are advised it is not necessary to answer.

Answering generally these defendants aver that the valuation of the property of the plaintiff in accordance with paragraph seven of the Public Utilities Act was made by the Public Utilities
68 Commission with a full recognition of its duty both to the public and to the plaintiff, and that its conclusions were based upon the evidence in the record, and are sustained thereby.

They aver that the report of the accounting bureau of the Public Utilities Commission, made by Andrew Sangster, the chief accountant, and the report of the reproduction cost, made by the engineering staff, under Charles L. Pillsbury, were made with the utmost care, and after a most minute investigation into the books, accounts and records of the plaintiff and as to cost of reproduction after a most careful survey and inventory of all of its property made upon the ground and checked and re-checked in order that its accuracy might be unquestioned.

They aver that the report on the actual cost of the property of the company as disclosed by its records was as accurate as could possibly have been made considering the way in which the records of the plaintiff and its predecessors had been kept, and that where a doubt arose in the mind of the Commission as to the propriety of allowing any item of cost disclosed by the examination that such doubt was resolved in favor of the plaintiff. They aver that the report of the engineering bureau was accurately and carefully made, and that the unit prices applied were fair, just, and reasonable, and that all intangible elements of value of every kind and character was carefully considered by the Commission and due and full allowance made for all such; that properly entered into the consideration of the fair value of the property of the plaintiff.

They aver that from the time the Commission organized its valuation bureau and started the performance of its duties
69 as required by the Act of Congress creating the Commission that the plaintiff not only failed to co-operate with the Commission in every way but refused to lend it the slightest assistance in this public work, and in many ways retarded its operation, delayed its efforts, and indulged in a form of negative obstruction which rendered the work of the Commission doubly difficult and greatly enhanced its cost to the tax-payers of the District of Columbia.

They aver that notwithstanding the obstinate and unhelpful

attitude of the plaintiff, the Commission proceeded with its work and completed the report now before the court, both as to the historical cost and reproduction cost in accordance with the most scientific methods known to valuation bureaus.

They aver that when these reports were completed the plaintiff was promptly furnished with the summaries thereof in the hope, if not the expectation, that it would informally point out to the Commission any errors which might have been made in so extensive and complicated an undertaking, but that the plaintiff maintained its attitude of unwillingness to aid the Commission in any way.

They aver that when the hearing upon the valuation of the plaintiff's property begun that the plaintiff vigorously protested: it claimed that in considering the reports which had been prepared by direction of the Commission by competent engineers and accountants employed by it and under its immediate supervision, that the consideration of these by the Commission as a *prima facie* ascertainment by it of the historical cost or the reproduction cost of the property of the company, cast an undue burden upon the plaintiff. Thereupon the Commission, although it felt in
70 nowise called upon so to do by the law creating it, yet in order that not the slightest injustice might be done to the plaintiff, placed upon the witness stand the accountant and engineer, under whose immediate supervision these reports had been made, and submitted them to careful questioning on the part of the Commission, and to a rigid, lengthy, detailed and exhaustive cross-examination not only by attorneys for the plaintiff but by the expert accountants and engineers whom the plaintiff had employed, and permitted such cross-examination to be unrestricted in every possible sense.

They aver that the utmost latitude was allowed to the plaintiff in the introduction of its own testimony; that no technical objections of any sort were made by counsel for the Commission but that the door was thrown wide open to all of the witnesses of the plaintiff to enlighten the Commission as far as possible, and to enable it to perform its duties, under the law, fairly and impartially.

They aver that the most careful and impartial consideration was given by the Commission to the testimony of all of the witnesses who appeared before them; and to every element of value testified to by the witnesses for the plaintiff.

Answering further generally these defendants aver that in ascertaining the fair value of the property of the plaintiff in accordance with paragraph seven of the Public Utilities Act, neither the recorded cost of the property as it appears from the books of the company nor yet the cost of reproduction as testified to by the various witnesses, are in and of themselves determinative of the fair value of the property contemplated by the Public Utilities Law.

As was said by the Supreme Court of the United States in
71 *Smythe* vs. *Ames*, while these should be considered in the determination of fair value yet they are only factors and

elements to be considered by the Commission in the determination of fair value along with others as elements and factors to be given such weight as in the judgment of the Commission they should have upon all the facts before the Commission and under all the circumstances of the valuation. That so far as the above mentioned factors are concerned they were carefully considered by the Commission, and, after months of study, they were given that weight to which, in the judgment of the Commission, they were entitled.

Answering further these defendants aver that the so-called bill of complaint herein exhibited partakes more of the nature of a bill of exceptions to the findings of the Commission than the ordinary bill of complaint in an equity proceeding; that the method of allegation adopted by the plaintiff involves so many questions of law and so many conclusions of the pleader that they have found it almost impossible to answer the same in the same manner and form as are employed in answering an ordinary bill in equity, and that under the conditions of the complaint they should not be taken to admit any allegation or conclusion which they had not specifically denied.

VII. Defendants say that Paragraph VII is a general statement of matters set forth in the bill and hereinbefore fully answered. Further, specifically answering the rule to show cause herein issued defendants say that it was not contemplated in any provision of the Public Utilities Law that a Court of Equity might issue a preliminary restraining order or injunction to suspend pendente lite a valuation made by the Commission, but that the same should be suspended or enjoined only after a full hearing by the Court
72 upon the merits of the case; that the plaintiff has not in and by its bill set forth such a state of facts as would show or tend to show that it would be irrevocably injured if a temporary restraining order was not granted and does not claim by its bill that any such result would happen should such order of valuation not be suspended. These defendants further aver that they have denied the material allegations of the bill upon which the plaintiff bases its right to relief and that having done so the Court should not grant an order staying the order of the Commission complained of in the bill.

The defendants file herewith and pray to be read as a part of their answer a copy of the Opinion and Order of the Commission referred to repeatedly in the original bill and this answer, the same being Order No. 208, Formed Case No. 47, Opinions and Findings of the Public Utilities Commission of the District of Columbia in the Matter of the Valuation of the Potomac Electric Power Company, marked Exhibit No. 1.

Commissioner John G. D. Knight answers upon information and belief, as he was not a member of the Commission when the Order complained of was passed.

Having fully answered the bill of complaint herein exhibited and the rule to show cause herein entered, these defendants pray that the said rule may be discharged and the said bill dismissed,

and that they may be hence dismissed with their reasonable costs in this behalf incurred.

LOUIS BROWNLOW,
OLIVER P. NEWMAN,
JOHN G. D. KNIGHT,
Constituting the Public Utilities Commission of the District of Columbia.

CONRAD H. SYME,
General Counsel.

73 DISTRICT OF COLUMBIA, *ss:*

We, Louis Brownlow, Oliver P. Newman and John G. D. Knight, constituting the Public Utilities Commission of the District of Columbia, do solemnly swear that we have read the foregoing and annexed answer, and know the contents thereof; that the matters and things therein stated upon our own personal knowledge are true, and those stated upon information and belief we believe to be true.

LOUIS BROWNLOW.
OLIVER P. NEWMAN.
JOHN G. D. KNIGHT.

Subscribed and sworn to before me this 14th day of August, A. D., 1917.

[SEAL.]

F. C. LEE,
Notary Public, D. C.

Answer and Cross-bill of Defendant Washington Railway & Electric Company.

Filed November 15, 1917.

* * * * * * *

The defendant, Washington Railway and Electric Company, for answer to so much and such parts of the Bill of Complaint in the above cause as it is advised is material for it to make answer unto, answering, says:

It admits that, as is alleged in the seventh paragraph of the Bill, it filed its petition in the proceeding before the defendant, the Public Utilities Commission of the District of Columbia, to value the property of the Potomac Electric Power Company, and that its said petition was denied by the Commission as set forth in said paragraph of the Bill, which action of the Commission this defendant
74 avers was erroneous in view of the contractual relations between itself and the plaintiff as set forth in the Bill, and the necessary interest of this defendant in the matter of said proceedings. It believes and avers all of the allegations of said petition

and all of the other allegations of the Bill to be true, adopts the same as parts of this its Answer, and prays that this Answer may be taken as a Cross-Bill against its co-defendant, the Public Utilities Commission of the District of Columbia, for relief against the action of said Commission in denying its said petition and for the assertion of its rights in the premises, and to that end adopts the prayer of the plaintiff's Bill as the prayer of this its Cross-Bill in so far as pertinent to this respondent's interest.

And respondent will ever pray, etc.

WASHINGTON RAILWAY
AND ELECTRIC CO.,
By CLARENCE P. KING,
President.

J. J. DARLINGTON,
CHAS. A. DOUGLAS,
S. R. BOWEN,
JNO. S. BARBOUR,
Attorneys for Wash. Ry. & E. Co.

DISTRICT OF COLUMBIA, *ss:*

I, Clarence P. King, being first duly sworn according to law, on oath depose and say that I am President of the Washington Railway and Electric Company, and that I have read the foregoing Answer and Cross-Bill by me subscribed, and know the contents thereof; that the matters and things therein stated as of my personal knowledge are true, and those stated upon information and belief I believe to be true.

CLARENCE P. KING.

75 Subscribed and sworn to before me this 15 day of November, 1917.

[SEAL.] EDMUND W. WHITEHEAD,
Notary Public, District of Columbia.

Copy to Conrad H. Syme, Esq., Corporation Counsel, D. C., District Building, Wash., D. C.

Answer to Cross-bill of Washington Railway and Electric Co.

Filed February 20, 1918.

* * * * * * *

The respondent, The Public Utilities Commission of the District of Columbia, for answer to the cross bill of the Washington Railway and Electric Company, herein filed, adopts as its answer thereto, the answer by it filed to the original bill exhibited herein.

THE PUBLIC UTILITIES COMMISSION OF
THE DISTRICT OF COLUMBIA,
By LOUIS BROWNLOW,
Chairman.

76 *Opinion of the Court.*

Filed March 2, 1920.

This is a bill in Equity, filed by the Potomac Electric Power Company, Incorporated, Plaintiff, (hereinafter called the Power Company), against the Public Utilities Commission of the District of Columbia, (hereinafter called the Commission), for the review by this Court of the findings of the Commission as to the value of the property of the Power Company.

The jurisdiction of this Court attaches by reason of the provisions of Paragraph 64 of the Act of Congress approved March 4, 1913, which provide that any public utility being dissatisfied with any order or decision of the Commission fixing any valuation, rate or rates, tolls, charges, schedules, joint rate or rates, or regulation, requirement, act, service or other thing complained of may commence a proceeding in equity in the Supreme Court of the District of Columbia against the Commission, as defendants, to vacate, set aside or modify any such decision or order on the ground that the valuation, rate or rates, tolls, charges, schedules, joint rate or rates, or regulation, requirement, act, service or other thing complained of fixed in such order is unlawful, inadequate, or unreasonable.

Pursuant to this provision of the law, the Company has filed its bill in this Court to reveiw the findings of the Commission.

77 The law further provides that such proceedings shall be decided and determined as are all equity proceedings in this Court.

Paragraph 69 of the Act provides that in all trials, actions and proceedings arising under the provision of this section or growing out of the exercise of the authority and powers granted therein to the Commission, the burden of proof shall be upon the party adverse to such Commission or seeking to set aside any determination, requirement, direction, or order of said Commission to show by clear and satisfactory evidence that the determination, requirement, direction, or order of the Commission complained of is inadequate, unreasonable, or unlawful, as the case may be.

In the instant case, the opinion and findings of the Commission in the matter of the valuation of the property of the Power Company, filed May 2, 1917, contain one hundred and five printed pages; and it is this opinion that the Court is called upon to review. The record of oral testimony taken by the Commission contains 6,221 pages in nine volumes; the testimony of one expert on the part of the Power Company, (Harold Almert), bound in four volumes, contains 1,234 pages; the findings of other experts are of equal length; and the brief of one of the counsels for the plaintiff contains five hundred and fifty-seven pages, exclusive of appendices.

No brief of testimony, as required by the equity rule of this Court, has been filed by either party. The result has been that this Court, at most exacting expense of time and labor, has been compelled to read practically the entire record, as well as the voluminous briefs.

A thorough review of the work done by the Commission in this case serves to emphasize the wisdom of applying to its find-
78 ings the rules laid down by the United States Supreme Court in determining the weight to be given them. In April, 1914, the Commission organized a valuation bureau to assist in the task of ascertaining the amount of money expended in the construction and equipment of the plaintiff Company, that is to say, what is generally described as the historical cost of the utility, and also the amount of money it would require to replace all of the physical properties belonging to the Power Company, which measure of value is commonly known as the reproduction cost.

The Accounting Division of the Commission, whose duty it was to ascertain the historical cost, was under the immediate direction of Mr. Andrew Sangster, of Chicago, a certified public accountant, as chief accountant. Mr. Sangster made a report on the historical cost of the Power Company, which is in evidence, and subsequently testified before the Commission and was cross-examined by the counsel for the Power Company at great length in regard to the items which made up the historical cost of the property of the plaintiff Company.

The ascertainment of the reproduction cost was under the immediate direction of Mr. Charles L. Pillsbury, a consulting engineer, as chief engineer, employed by the Commission. The work of inventorying the property was begun on June 1, 1914, and was continued throughout 1914 and the first half of 1915. The report of Mr. Pillsbury upon the reproduction cost is also in evidence as an exhibit in this case; he further testified before the Commission and was cross-examined at great length by counsel for the Power Company.

Copies of both of these reports, namely, those of Mr. Sangster and Mr. Pillsbury, were transmitted to the Power Company on the 18th day of May, 1916, and the Company was notified that on the
79 26th day of May, 1916, the Commission would proceed to a valuation of its property in accordance with the law. On the latter day, the oral hearings on the valuation commenced.

At the outset, the Power Company objected to the consideration of the reports of the Commission as a *prima facie* ascertainment of the valuation to be placed on its property. Whereupon the Commission assumed the initiative and offered for cross-examination the witnesses who had compiled the above-mentioned reports. On July 21, 1916, an adjournment was granted by the Commission until September 15. From that date until October 26th, 1916, the cross-examination of Mr. Sangster and Mr. Pillsbury continued by the counsel for the Power Company.

The Power Company then put upon the stand Mr. Harold Almert, of Chicago, a consulting engineer, who submitted in evidence his report on the cost of reproduction of the Company's property. Other witnesses also testified on behalf of the Company. The case was finally submitted to the Commission for decision on January 21, 1917.

Mr. Almert's report on the cost of reproduction of the Company's property, including all claimed intangible elements of value, consists of 1,234 pages of typewritten matter comprised in four volumes.

It will thus be seen that the investigation by the Commission on the one side as to the valuation of the property of the Company, together with the presentation by the Company of its claim as to such value, covered a period of substantially two and one-half years.

It is not unreasonable, therefore, that the Court should attach to the findings of the Commission in this case all the weight that has been attached to such findings under the decisions of the Su-
80 preme Court and the other courts.

It may be added that the Power Company submitted no complete statement of the historical value of its property, or, in other words, the amount shown by its books to have been invested in the property, although Mr. Ham, an official of the Company, discussed at length that value as shown by the books of the Company.

At the outset of the consideration of the important questions involved, it is necessary to ascertain with exactness the jurisdiction possessed by this Court under the statute. It does not admit of question that any rule laid down by the Supreme Court in similar cases should be followed by this Court.

In the case of the Interstate Commerce Commission vs. Union Pacific Railroad Company, 222 U. S. 541, the Supreme Court of the United States, in deciding whether the Interstate Commerce Commission had exceeded its power in fixing a rate on lumber, said:

"In determining these mixed questions of law and fact, the court confines itself to the ultimate question as to whether the Commission acted within its power. It will not consider the expediency or wisdom of the order, or whether, on like testimony, it would have made a similar ruling. 'The findings of the Commission are made by law prima facie true, and this court has ascribed to them the strength due to the judgments of a tribunal appointed by law and informed by experience.' Ill. Central Ry. Co. vs. I. C. C., 206 U. S. 441. Its conclusion is, of course, subject to review, but when supported by evidence is accepted as final; not that its decision, involving, as it does, so many and such vast public interests, can be supported by a mere scintilla of proof;—but the courts will not examine the
81 facts further than to determine whether there was substantial evidence to sustain the order."

So in the case of the Interstate Commerce Commission vs. Louisville and Nashville Railroad Company, 227 U. S. 88, at page 100, the Court said:

"The order of the Commission restoring a local rate that had been in force for many years and making a corresponding reduction in the through rate was not arbitrary, but sustained by substantial though conflicting evidence. The courts cannot settle the conflict nor put their judgments against that of the rate making bodies."

Probably no case emphasizes the point involved more emphatically than People ex rel. the New York & Queens County Gas Company vs. McCall, 219 N. Y. 84. There the Company declined to obey the Commission's order because the extension of its gas mains and serv-

ices required of the Company by the Commission would not yield more than two and one-half per cent. The Company began a suit in the Supreme Court of the State to have the order of the Commission declared unreasonable. The Supreme Court decided against the Commission, asserting the right to say "whether the extension ordered was a reasonable extension." The Court of Appeals reversed the Appellate Division ruling that this assertion was erroneous, because—

"the Court has no power to substitute its own judgment of what is reasonable in place of the determination of the Public Commission; it can only annul the order of the Commission for the violation of some rule of law."

As to why the judgment of the Commission should predominate over that of the court, the Court of Appeals pointed out that the Commission was created to perform important functions in the
82 community with reference to the regulation of the utilities, and that the Commissioners were expected to have peculiar capacity for dealing with the complex problems presented by the activities of public service corporations.

This case was affirmed by the Supreme Court of the United States under the same title in 245 U. S. 337, the Court saying:

"This interpretation of the statutes of New York is conclusive, and the definition, thus announced, of the power of the Courts of that State to review the decision of the Public Service Commission, * * * differs but slightly, if at all, from the definition by this Court of its own power to review the decisions of similar administrative bodies, arrived at in many cases in which such decisions have been under examination" (citing cases).

While the greater number of the cases deciding the question were rate cases, the principle is equally applicable to valuation cases. Perhaps no case ever before the Courts involved the same necessity of a clear recognition and application of it to the findings of the Commission as the instant case.

The limitation of the Court's rights to review the findings of the Commission, as determined by the Supreme Court of the United States, renders a detailed discussion of the evidence in the instant case unnecessary, even if it were practicable, and a general analysis of the decision of the Commission will be sufficient to indicate the grounds upon which my conclusions are based.

It may be stated, however, quite broadly, that if the testimony adduced as to the value of the Power Company's property by both the witnesses for the latter and for the Commission was to be weighed as
in an ordinary civil case I would find not only that the con-
83 clusions of the Commission as to the historical value of the property were sustained by substantial evidence, but by a preponderance of the evidence. This conclusion does not include certain specific items, which the Power Company claims should have been included in making up the value of its property and which were excluded by the Commission, as to which the evidence is not in sub-

stantial dispute, and where the conclusion of the Commission might be said to be a matter of law. Such of these items as are important will receive separate consideration hereinafter.

Some question was made in the argument by one of the counsel for the plaintiff, the Power Company, as to the character of the valuation which the Public Utility Law directed to be made. There is no doubt in my mind that the valuation contemplated by that law was one for the purpose of determining rates and services. Section 2 of the law provides:

"That every public utility doing business within the District of Columbia is required to furnish service and facilities reasonably safe and adequate and in all respects just and reasonable; the charge made by any such public utility for any facility or service furnished or rendered, or to be furnished or rendered, shall be reasonable, just and non-discriminatory. Every unjust, unreasonable or discriminatory charge for such facility or service is prohibited and is hereby declared unlawful. Every public utility is hereby required to obey the lawful order of the Commisssion created by this Section."

It is self-evident that the only method by which the Commission could determine whether a charge was reasonable or unreasonable, or whether a service was adequate or inadequate, was by de-
84 termining the fair value of the property upon which the utility had a right to receive a reasonable return, and this was done by the Commission.

It was insisted by counsel for the Power Company that the Washington Railway and Electric Company, by virtue of its ownership of all of the stock of the plaintiff and of certain contractual relations alleged to exist between it and the Power Company, and because it had guaranteed certain obligations of the Power Company, had a right to be made a party defendant in the cause; it also was insisted on behalf of the Power Company that a proper construction of the act of Congress of June 5, 1900, entitled the Washington Railway and Electric Company, by reason of the ownership of the stock of the Power Company, to have electric light rates fixed with reefrences to deficiencies in the earnings of the Washington Railway and Electric Company. Neither of these contentions can be sustained. The Public Utilities Law in specific terms made it the duty of the Power Company to furnish its service at a reasonable cost, and that reasonable cost is to be determined, according to repeated decisions of the Supreme Court of the United States, by the return which the Power Company is entitled to receive upon the fair value of its property, and the amount of this return is not to be affected by the financial needs or difficulties of another corporation, performing a dissimilar service, even if the latter is the owner of the entire capital stock of the Power Company. In addition to this, the Act of Congress of June 5, 1900, specifically prohibits the Washington Railway & Electric Company from acquiring or owning the whole or any part of the property or franchises of the Power Company. For these reasons, the Commission did not err in refusing to permit the Washington

Railway & Electric Company to become a party respondent,
85 nor did it err in holding that the duty of the Power Company under the law was to furnish its services at a reasonable cost of consumers regardless of its connections through stock ownership or otherwise with any other public utility.

The fair value to be found by the Commisssion under the terms of the Public Utility Law for rate-making purposes, in my opinion, and I so find, means the actual, necessary and reasonably true investment in money or its equivalent made by the utility for the purpose of the exercise of the public duty it owes under the public grant which it enjoys. This investment covers the cost of the property used and useful in its operation, the reasonable value of any property dedicated to it by private persons for this public use and such unearned increment from its property holdings of real estate as may have accrued to it through any general rise in real estate values. It covers and includes every legitimate expenditure made and properly chargeable to its capital account, provided it has written off all property that has ceased to exist or passed from use from any cause, and depreciation has been properly provided for. A public utility is not, and under the law cannot be, considered in the nature of a speculative enterprise. The persons, whether as individuals or as partners or in a corporate form, are under no obligation to themselves or to the public to invest their capital in any public utility. Having done so, however, they have under the law, and by a principle which was announced by Lord Hale in England, centuries ago, the right to a fair return upon their actual investment and to nothing more. If risk and danger be attached to the enterprise at its inception, the law gives them the right to a larger return because of the risk en-
86 countered, but not the right to a larger valuation for this reason, and when the period of risk is passed and the enterprise is safely established, the law reduces the rate of return to a fair and reasonable percentage upon the fair value of the property to be ascertained upon a consideration, not of the rights of the investor in the utility alone, but upon the rights of the public whose patronage is the prime factor in the success of the enterprise. In my opinion, there is no other just and reasonable principle upon which a rate base can be determined in the case of a fairly normal utility operating under fairly normal conditions. These conclusions are to be read, in one form or another, in repeated decisions of the United States Supreme Court ,beginning with Munn vs. Illinois, 94 U. S. 113, which has well been called a "Landmark in the Law." In language oft quoted, Chief Justice Waite uses this oft-repeated language:

"Property does become clothed with a public interest when used in a manner to make it of consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created."

The method of ascertaining fair value depends upon circumstances, and frequently, as in this case, the ascertainment of the historical

cost of the property is combined with its reproduction cost, less depreciation, and these are considered in the light of those other elements of value specified in Smyth v. Ames, 169 U. S. 466, and other decisions of the Supreme Court of the United States.

87 As previously stated, the Commission through its accountants and engineers made a prima facie ascertainment of the historical cost and an estimate of the reproduction cost of the physical property of the plaintiff and used the same as a basis upon which to begin its hearings as to the valuation of the Power Company's property, and took upon itself the burden of putting in evidence by competent testimony these ascertainments and estimates made by its accountants and engineers. In this procedure, there was nothing of which the Power Company could justly complain. The record discloses not only that the Power Company in nowise assisted the Commission or its officers or assistants in making these ascertainments and estimates, but it indulged in a system of negative obstruction, far from commendable; and while it may not have actually concealed the truth in any instance, it certainly put itself to no pains to advise the Commisssion of any facts relative to the extent, location or cost of its property.

A great deal was said in the argument with reference to certain eliminations, amounting to $144,285.75. This amount is the residue of a considerably larger sum representing the cost of many items of property which, from the evidence, had disappeared from the tangible property of the Power Company or had become no longer used nor useful. It appears that the Commisssion, after weighing the Power Company's claims for the restoration of the entire amount originally eliminated by the Commission's accountant, did restore the larger portion, leaving the $144,285.75 referred to. These eliminations were justified by substantial evidence, and when it is remembered that the fair value of the property of the plaintiff as found by the Commission as of July 1, 1914, is more than $1,300,000.00 greater than the amount found by its accountants as the un-

88 depreciated historical cost of the property, and over $1,000,000.00 in excess of the Commission's finding for the same item, it will be seen that no injustice resulted from this action of the Commission.

Another item which the Commission refused and properly refused to allow in the historical cost of the Power Company's property was the sum of $1,977,150.63, being the amount added on the books of the Power Company to the cost of the property at the time of the absorption of the United States Electric Lighting Company by the Power Company.

It appears from the testimony that on the 30th day of September, 1902, the balance sheet of the United States Electric Lighting Company showed its cost of plant and equipment to be $2,081,959.75, to which was added certain construction expenditures charged to surplus account, in the sum of $279,465.79, making its total plant and equipment cost the sum of $2,361,425.54. This property was transferred to the Power Company and written on its books as costing $4,338,576.17. The property account was thus inflated in the sum

of $1,977,150.63, for which stock was issued. This inflation of the property account of the Power Company was accomplished by means of a so-called sale of the property of the United States Electric Lighting Company to the Power Company. At the time of this transaction, the Washington Railway & Electric Company was the sole owner, not only of all of the stock of the Potomac Electric Power Company, the plaintiff, but of all the stock of the United States Electric Lighting Company, and the Boards of Directors of the latter companies were identical. Of course, no lawyer would argue for a moment that this transfer amounted either to a valid contract or sale. The common saying that "it takes two to make a bargain" has an absolutely unshakable foundation in law; because it has been
89 held in repeated cases that it takes two parties to make a contract. (Gorham's Admr. vs. Meacham's Admr. 63 Vt. 231). By means of this so-called sale, conceived, conducted and closed by identical Boards of Directors, the cost of the United States Electric Lighting Company to the Power Company was made to appear on the books of the latter at $1,977,150.63 more than was actually paid. The Power Company now seeks to capitalize this amount and to exact a return upon it. Regardless of the fact that it is exceedingly doubtful whether the United States Electric Lighting Company had the legal right to divest itself, without legislative authorization, of the property which it was using in the public service, this attempt to inflate the book value of the property of the United States Electric Lighting Company above the actual cost to the Power Company and charge such increase against the public ought not to be permitted from the standpoint either of law or justice. If this excess amount actually represented anything, it represented an attempt to capitalize, as against the public, the privilege or franchise to use the public streets of Washington for a public purpose which had cost the United States Electric Lighting Company nothing, so far as the evidence in this case shows. The Commission, therefore, did not err in refusing to countenance this transaction, and properly disallowed this item.

The Power Company also claimed that it had a right to the allowance, as part of the historical cost of its property, of the sum of $1,000,000.00, representing what it paid in its stock for certain water rights at what is known as the Great Falls Power Site. It is a significant fact that these rights to this non-productive property were not only previously acquired by the Washington Railway &
90 Electric Company and held by it for twelve years before it transferred them to the Power Company, but that title, up to the time of the hearing in this case, had not been perfected, either in that Company or in the Power Company. It is also worthy of notice that shortly before the Public Utilities Law was enacted the Washington Railway & Electric Company and the Power Company, acting through identical Boards of Directors, consummated a transaction by which these rights were transferred to the Power Company for $1,000,000.00 of the stock of the latter Company. This power site is located outside the District of Columbia. It has never been used for the purpose of supplying power to those who use electric

current in the District of Columbia, nor is there a scintilla of evidence in the record that it ever will be so used, by the Power Company. Its actual value is problematical, and the ability of a private owner of power rights at this site to develop them is further complicated by the larger Federal government's interest therein. No witness who claimed to have any knowledge on the subject testified as to what the value was. For these reasons, there was no justifiable theory upon which the $1,000,000.00 of stock issued for it by the Power Company could be treated as an actual value of $1,000,000.00 upon which the Power Company would be entitled to collect revenue from its patrons in the District of Columbia. The Commission, therefore, did not err in excluding it, either as an item in the historical cost of the property, or in the reproduction cost, or in its finding of fair value.

The Power Company also claimed that it had a right to have included in its property to be valued as a part of its historical cost what is known as Graceland Cemetery, the valuation claim of which was $116,155.80. The evidence in the case discloses that this property had never been used for the purposes of the Power Company;
91 that it had been acquired for the benefit of the Washington Railway & Electric Company, and was in fact, at the time of the hearing, being used for street railway purposes so far as it was being used for any purpose whatever. The Commission excluded this property in its finding of fair value, and in doing so committed no error.

The claim of the Power Company to have capitalized $201,174.42 representing unamortized debt-discount and expense was properly disallowed by the Commission. A careful examination of the opinions of experts who have made a study of the accounts of public service corporations convinces me that this is neither a proper charge to cost of property nor to cost of operation, but that it should be taken care of in the fixing of rates to be charged by the Power Company in such a manner that it will finally disappear.

The order of the Commission shows that it carefully considered, so far as the historical cost is concerned, all amounts expended for engineering and superintendence, general administration, interest during construction, and similar overhead charges shown by the books and records of the Power Company. The findings of the Commission show that as to some of these items more was allowed than its accountants had included in their reports. After weighing the evidence on both sides, which was to an extent conflicting, the Commission exercised its judgment as to the proper amounts to be allowed, and as its conclusions were based upon substantial evidence they will not, as already stated, be disturbed.

The Power Company also claimed under the head of Preliminary and Organization Expenses, and as a part of the historical cost, the sum of $550,000.00, representing that amount of the capital stock of the Power Company issued to Messrs. Crosby and Leid, for
92 their services on behalf of the Company in obtaining loans from the United States Mortgage and Trust Company, amounting to between $400,000.00 and $700,000.00, the testimony

being somewhat obscure as to the exact amount of the loan, and also for their services in securing a contract for power with the Eckington & Soldiers Home Railway Company. At the time of these transactions, Crosby and Lied were the owners of practically the entire capital stock of the Power Company, and voted to themselves this $550,000.00 of stock as a commission for negotiating the loan and securing the contract. In the issue of the stock, they designated that it was for "extraordinary services." It does not appear from the evidence that the contract they secured, whatever may have been its nature, was of any value, and when it is considered that the sum of $109,750.00 was paid by the Power Company for discount and commission in securing the loan, it is impossible to understand upon what theory this stock issued to Crosby and Lied can be justified as a proper part of the historical cost of the Power Company. At the time they were practically the sole owners of the stock of the Company, and were among its officers and directors, and whatever services they performed were not only not extraordinary, but were clearly within the line of their duty as such officers and directors. The principle of law which prevents a person standing in a fiduciary relation from making a profit at the expense of his *cestui que* trust is too well established to justify me in making citations to support it. Under the evidence as to this transaction, the Commission was justified in excluding this sum in its ascertainment of the historical cost of the property.

It is unnecessary to go into further details with reference to the Commission's findings of historical cost. Many of the claims made by the Power Company were the result of an apparent attempt to rewrite its books and charge to its capital account items which
93 it had for many years reported to Congress as operating expenses, and others were mere estimates based on some arbitrary percentage assumed on one or two years' operations as what might have been overhead charges included in operating expenses. These claims were unsupported by any direct testimony that such expenditures had actually occurred, and I find no ground upon which the Commission's conclusions as to these matters should be disturbed.

It was strenuously contended by counsel for the Power Company that the Commission in making its estimate of reproduction cost as of July 1, 1914, committed error; that the reproduction cost should have been taken as it was by Almert, the expert for the Power Company, in his report as of July 1, 1916. To this I cannot agree. Reproduction cost less depreciation is but one of the elements of value, and in my judgment ordinarily only a negative element, to be considered in the final determination of fair value. Its use is to throw light upon the actual amount invested, and this can only be done where the reproduction cost is determined as of a fairly normal period. It would lose all value if made as of an abnormal period when prices were abnormally low or high. To be of any assistance or real use, it must be made as of a normal time and the unit cost applied thereto should extend over a sufficient number of years to show a normal trend of prices. To quote the language of former

Justice Charles E. Hughes, acting as Referee in the case of Brooklyn Borough Gas Company v. Public Service Commission (July 24, 1918):

"To base rates upon a plant valuation simply representing a hypothetical cost of reproduction at a time of abnormally high prices due to exceptional conditions would be manifestly unfair to the public, and likewise to base rates upon an estimated cost of repro-
94 duction far lower than the actual bona fide and prudent investment because of abnormally low prices, would be unfair to the Company. This question of taking hypothetical reproduction cost under abnormal conditions as a rate base should, of course, not be confused with the necessity of recognizing actual cost of operation, even though abnormal. A public service corporation is entitled to be reasonably compensated for its service, and the actual cost of its operations must always be taken into consideration in determining whether or not it receives a fair compensation above that cost. But it is a different thing, after cost has been defrayed, and the question is as to the compensation to be allowed in excess of cost, to take as the basis for a compensatory return an asserted plant value, far above the actual investment, which is reached merely by expert estimates of a cost of reproduction under abnormal conditions. This would result in allowing a public service corporation to take advantage of a public calamity by increasing its rates above what would be a liberal return not only on actual investment, but upon a normal reproduction cost, in the view that unless it could make an essentially exorbitant demand upon the public it would be deprived of its property without due process of law. The enforcement of the constitutional guaranty does not require the application of any artificial formula. It is constantly been pointed out that the rate base must be what is called 'the fair value of the property,' and that as to this there must be a reasonable judgment based on a proper consideration of all relevant facts." (Citing many cases.)

The date adopted by the Commission in this case was as near
95 a normal date as it was perhaps possible to get; the unit costs applied to the inventory were determined after a consideration of the trend of prices given by the witnesses, and the Commission added five per cent to the entire reproduction cost of the physical property as found by its engineers. As already indicated by the quotation from the opinion of Judge Hughes, the fact that prices of labor and material on account of the war in Europe advanced to great heights with a rapidityand to an extent never before experienced from about the first of January, 1915, to the time of the valuation, has no bearing whatsoever upon the cost of reproduction as a factor in a valuation for rate-making purposes. The Commission would have committed a great error, unjust to the public, and destructive of the value of the reproduction cost as an element in a valuation case of this character, to have attempted to find normal prices based upon either current prices as of July 1, 1916, or upon normal prices then or thereafter as claimed by the Power Company. Such a course would have greatly impaired the reproduction cost estimate as one

of the elements of fair value. The adoption by the Commission of the date of July 1, 1914, as to which the inventory was to be made and normal unit prices applied, was reasonable and proper, and its action in so doing has the sanction of the highest legal and engineering authorities.

It is unnecessary to analyze the findings of the Commission as to the costs of preliminary operation, financing, pre-organization expenses, brokerage and commisssion, and kindred items so far as reproduction cost is concerned. These hypothetical costs based upon an hypothetical reconstruction of the property the Commission allowed for in its final finding of fair value in such sums as under the evidence in the case and the exercise of reasonable judgment
96 it thought proper, and I find no error in its conclusions in this respect.

There was a wide disparity between the witnesses for the Commission and those for the Power Company in regard to the amounts to be allowed for interest and taxes during construction. This resulted from the fact that the Commission's engineers conceived the erection of this hypothetical plant upon one basis and the engineers of the Power Company upon another basis, and the time of construction adopted by the engineers of the Power Company was two years longer than that of the Commission's engineers. The determination of the questions involved in this particular was for the good judgment and discretion of the Commission, and in its exercise no reversible error appears. The testimony was conflicting as to what allowance should be made for working capital and supplies, and as the finding of the Commission was based upon substantial evidence I have neither the right nor the disposition to substitute my judgment for that of the Commission.

The Power Company claimed as an item of reproduction cost the sum of $650,000.00 for "compensation to conceivers." This claim also is derived from a percentage applied by the Power Company's engineer Almert to his reproduction cost of the physical property. It is a purely hypothetical test, based upon the hypothetical reconstruction of the property, and is asserted upon the theory that some such amount might be required to be paid to some promoters or conceivers as compensation for the suggestion that a plant similar to that of the Power Company's should be constructed in Washington under the assumption that the existing plant was non-existent either on the first of July, 1914, or on the first of July, 1916. It appears from the evidence that the Power Company is not the company which established and developed the electric light and power busi-
97 ness of the District of Columbia. The United States Electric Lighting Company developed this business and at the time it was taken over by the Power Company, it was the result of slow evolution from a very small initial concern, and it is exceedingly unlikely that any cost whatsoever in the nature of a conceiver's commission or a promoter's commission attached to the enterprise. The business was developed slowly but successfully for fifteen years before its acquisition by the Power Company, and there is not the slightest evidence in the record that any such cost was ever paid by it. To

hold that the public is to be charged with such an amount, which is a pure figment of the imagination, unsupported by any evidence, is without justification either in law or fair dealing, which latter the public utility owes to its patrons. The Commission properly disallowed this item.

In the estimate made by Almert, the engineer of the Power Company, a claim of $2,115,323.00 was made for what he called development costs, under his reproduction theory. This figure was arrived at by applying an arbitrary percentage to his reproduction cost of the physical property of the Power Company. The theory upon which such a claim was based seems to be that during a certain period of the Power Company's existence it must have incurred losses incident to the expansion of its business, either by obsolescence caused by change of construction or advancement of the art or because of securing the patronage which it now has. While it is true that such costs might attach under a purely hypothetical construction, yet when they are claimed as a basis upon which consumers are required to pay, not an hypothetical but an actual return, there should be at least some evidence that they actually did occur in the existing plant.

The records of the Power Company show that the net earnings
98 of the United States Electric Lighting Company up to the time of its acquisition by the Power Company and of the combined companies since that time have been more than sufficient to cover any such claim. All costs of attaching the business, so far as they were shown by the books and records of the Power Company, were allowed, and no actual expenditure appears in the testimony upon which a claim could be granted. The Commisssion in considering the question of development losses took the position that there was no justification for the large claim made by the Power Company, yet that it was proper to make some allowance for this element of value in its final finding of fair value, and that it made such allowance is evidenced by the fact that in its final finding of fair value as of July 1, 1914, it allowed $1,137,157.00 more than the cost of reproduction less depreciation found by its engineers.

The Power Company further claimed that it had a right to include in the present fair value of its property the sum of $2,500,000.00 for what it designated as its easements in the public streets. Whether the privilege to use the public streets which the Power Company possesses should be called a franchise, a privilege, or an easement, is of no consequence. The Power Company claims that its actual occupation and use of the streets under this privilege gives it an easement therein, and gives to this easement a separate and distinct value which it has a right to capitalize as against the public. To claim that these so-called easements which cost the Power Company nothing, without which it could not perform its public duty, and which it is allowed to exercise to enable it to do so, can be capitalized against the consumer of its product in any sum whatsoever, is to make the public use destructive of the public right and effect a result which should not be tolerated by
99 any judicial tribunal. Without passing upon the question as to whether or not these so-called easements would be

property rights if the property of the Power Company were to be condemned and taken by public authorities, or if the Power Company, being thereunto authorized by Congress, should effect a sale of its property to another company, it is sufficient to say that there should be no capitalization of an item of this character in a valuation made for the purpose of determining rates.

Under the decisions of the Supreme Court of the United States and of almost, if not every, commission and court which has passed upon the question, it was necessary for the Commission to consider the actual depreciation of the property at the time of the valuation. It did so consider it and although the Power Company's expert, Almert, testified that percentages and amounts both as to age, life and residual value of the different parts of the property were approximately fair, yet the Commission found that the actual depreciation should be materially less than that found by its engineers.

Fair value for rate-making purposes is necessarily expressed by some amount, and this amount, or fair value, constitutes the rate base. The objection that the Commission was finding "a fair amount" and not a "fair value for rate-making purposes" is without force, as the terms as used by the Commission are similar in meaning and effect.

The final result of the work of the Commission in its finding of fair value as of July 1, 1914, was to fix that value as of that date at an amount $1,300,000.00 greater than that found by its accountants as the historical cost of the property and $1,137,000.00 greater than the cost of reproduction less accrued depreciation as found by its engineers. It found the fair value as of July 1, 1914, at $10,250,000.00, and added thereto at the actual cost thereof
100 all net additions to capital from that time up to the date of the valuation, determining the fair value as of December 31, 1916, to be $11,231,170.43. The Commission valued the property as a going concern in successful operation. In my opinion, its procedure was logical, lawful and without prejudice to the Power Company, and that its conclusions were reached after careful and impartial consideration of all the evidence and data before it, and should be sustained.

I therefore overrule all exceptions taken by the plaintiff to the rulings of the Commission during the course of the hearing, and all exceptions to the findings which have been insisted upon before this Court, and direct that a decree be entered dismissing the bill of complaint herein exhibited.

ASHLEY M. GOULD,
Justice.

101 *Final Decree.*

Filed March 12, 1920.

* * * * * * *

This cause came on to be heard upon the bill of complaint herein exhibited, the answer of the Public Utilities Commission, the sepa-

rate answer of the Washington Railway & Electric Company filed as a cross-bill, the answers of the Potomac Electric Power Company and the Public Utilities Commission to said cross-bill, and the transcript of record of the Public Utilities Commission of the District of Columbia in the matter of the valuation of the property of the Potomac Electric Power Company, including all the evidence taken before the Commission and the exhibits filed therewith, and referred to in said bill, and was argued by counsel, upon consideration whereof it is by the Court this 12th day of March, one thousand nine hundred and twenty, adjudged, ordered and decreed that the plaintiff's bill of complaint and the cross-bill of the Washington Railway & Electric Company be and the same are hereby dismissed with costs to the defendant, the Public Utilities Commission of the District of Columbia. And the Potomac Electric Power Company and the Washington Railway & Electric Company in open court noted appeals to the Court of Appeals from this decree and the Court thereupon fixed the amount of the appeal bond to operate as a cost bond to be executed by the said appellants in the penalty of $100 00/100. And for good cause shown and by consent of parties the time for presenting a statement of the evidence in this case for approval by the Court is extended to the first day of September, one thousand nine hundred and twenty.

By the Court:

ASHLEY M. GOULD,
Justice.

102 *Memoranda.*

March 25, 1920.—Appeal Bond of plaintiff and Defendant No. 5 approved and filed.

August 23, 1920.—Time within which to submit Statement of Evidence extended from day to day including the first day of December, 1920.

November 23, 1920.—Statement of Evidence signed and filed.

Assignment of Errors.

Filed November 26, 1920.

* * * * * * *

The Court erred:

1. In that its decree in its necessary effect deprives the appellants of their private property without due process of law and takes it for public use without just compensation, contrary to the guarantees of the Constitution of the United States.

2. In finding that the expression "fair amount" as used by the Commission in its ascertainment was identical with "fair value" and was in conformity with the intent of the law.

3. In confirming the action of the Commission in basing its findings of fair value as of December 31, 1916, upon findings as to his-

torical cost and reproduction cost as of July 1, 1914, in total disregard of uncontradicted evidence showing great and permanent increases in all of such costs and values as well as operating and replacement expenses between those dates, which were still operating down to the hearing of the cause and to the present time.

103

4. In finding that the Commission would have committed grave error to have attempted to find normal prices based upon either current prices as of July 1, 1916, or upon normal prices then or thereafter.

5. In finding that the fact that prices of labor and material have advanced from about the first of July, 1915, to the time of the valuation has no bearing whatsoever upon the cost of reproduction as a factor in a valuation for rate making purposes, as of Dec. 31, 1916, and subsequent thereto.

6. In finding that the date adopted by the Commission in this case for the ascertainment of the cost of reproduction, to wit, July 1, 1914, was as near a normal date as it was perhaps possible to get.

7. In finding that the fair value to be found by the Commission under the terms of the Public Utility Law for Rate Making Purposes includes only the actual, reasonably necessary and true investment in money made by the plaintiff for public use, without regard to the historic cost of other elements, to reproduction cost or present value.

8. In holding that the reproduction cost is only a negative element to be considered in the determination of the fair value of the plaintiff's property.

9. In holding that the principal, if not the only, use to be made of the reproduction cost so ascertained is to throw light upon the actual amount originally invested.

10. In holding that the plaintiff's investment and historical cost and fair value are confined to the original cost of property used and useful in its operation, the original value of property dedicated to it by private persons, and the unearned increment to such of its property holdings of real estate only as may have accrued to it by any general rise in real estate values.

104

11. In holding that the Commission acted lawfully in making its estimates of reproduction cost as of July, 1914, and in carrying that cost into its ascertainment of fair value as of December 31, 1916, for rate making purposes.

12. In holding that the Court, in passing on the Commission's findings as to historical cost, reproduction cost, and fair value was bound by the findings of the Commission wherever such findings were sustained by substantial evidence.

13. In declining to weigh the evidence in this case, either as to the historical cost, the reproduction cost, or fair value.

14. In holding that the Commission's findings were supported by substantial evidence and in not holding that the Commission's findings were based on illegal and incompetent evidence.

15. In not acting upon the findings of the Commission as to

historical cost, cost of reproduction, and fair value upon its own weighing of the evidence in the record.

16. In adopting the final ascertainments of the Commission in its ascertainment of reproduction cost without analyzing or weighing the evidence thereon, merely because the Commission had exercised its judgment in regard thereto, and because there was some evidence to sustain those findings.

17. In finding that the conclusions of the Commission as to the historical value of the property were sustained by a preponderance of the evidence with the exception of the specific items excluded by the Commission as matter of law and as to which the Court found the evidence was not in substantial dispute.

105 18. In affirming the action of the Commission in excluding from historical cost and fair value expenditures shown to have been made for engineering and superintendence to the amount of $524,807.69, general administration to the extent of $322,013.32; interest during construction to the amount of $253,052.75; advertising, canvassing and soliciting to the amount of $295,933.97; betterments and improvements to the amount of $170,963.59; electric meter installation to the amount of $38,013.98; and for lightning arresters to the amount of $11,354.48, a total of $1,616,139.78, upon the grounds:

(*a*) That they were not originally *charged* to property account;

(*b*) That the Commission had exercised its own judgment in regard thereto; and

(*c*) That the Commission's conclusions were based on substantial evidence, without determining for itself whether they were contrary to law or to the weight of the evidence.

19. In holding that historical cost includes only legitimate expenditures made for and properly chargeable to capital account, less all property that had ceased to exist or has passed from use for any cause, less theoretical depreciation.

20. In approving the action of the Commission in excluding from the findings of historical cost and fair value the cost of all items of property, though properly chargeable to capital account and represented in existing property devoted to the public service by the plaintiff at the time of valuation which had been orginally paid from current revenues of the company and so reported to Congress in its reports of operating expenses.

106 21. In finding that these items, to-wit—engineering and superintendence, general administration, interest during construction, advertising, canvassing and soliciting, betterments and improvements, electric meter installation and lightning arresters, aggregating $1,616,139.78; were unsupported by any direct testimony that such expenditures had actually occurred.

22. In holding that the findings of the Commission as to historical cost, included all amounts expended for engineering and superintendence, general administration, interest during construction, and similar overhead charges shown by the books and records of the Power Company.

23. In finding that the Commission acted properly in excluding

from its estimate of historical cost, reproduction cost and fair value both the cost and value of the Graceland Cemetery tract.

24. In finding that the Commission acted properly in excluding both the cost and the value of the Great Falls Power property from its findings of historical cost, reproduction cost and fair value.

25. In confirming the action of the Commission in excluding from historical cost and fair value, $201,174.42, representing unamortized debt, discount and expense and in holding that such an expenditure is neither a proper charge to cost of property nor to cost of operation.

26. In confirming the action of the Commission in excluding from historical cost and fair value the cost of property abandoned to the extent of $7,046.46.

27. In confirming the action of the Commission in eliminating $144,285.75 from historical cost and fair value for property sold, scrapped or abandoned, and that this elimination was justified by substantial evidence or a preponderance of the evidence.

107 28. In confirming the action of the Commission excluding from working capital and supplies $234,125.36 in historical cost and $286,588.52 in reproduction cost which should have been allowed under the evidence, and correspondingly reducing the finding of fair value.

29. In finding that the Commission properly excluded from the historical cost of the plaintiff's property and from its fair value the sum of $1,977,150.63, part of the sum lawfully paid by the plaintiff company for the property rights and franchises of the United States Electric Lighting Company, and the sum of $7,833.23, part of the sum lawfully paid for the property rights and franchises of the Potomac Light and Power Company.

30. In finding that by means of the purchase of the property rights and franchises of the United States Electric Lighting Company the cost of the United States Electric Lighting Company was made to appear on the books of the plaintiff at $1,977,150.63 more than was actually paid therefor.

31. In approving the action of the Commission in excluding from the historical cost under the head of Preliminary and Organization Expenses and from Fair Value, the sum of $550,000 shown by the evidence to have been paid Messrs. Crosby and Lieb in connection therewith.

32. In affirming the action of the Commission in deducting from historic cost and reducing its findings of fair value by a profit of $28,488.69 realized by the company on the re-sale of a portion of its real estate.

33. In approving the finding of the Commission that the reproduction cost of labor and materials, exclusive of general overheads, was $9,757,064.59 as of July 1, 1914, instead of $12,348,871.98 as of July 1, 1916, as shown by the evidence, and in correspond-

108 ingly reducing its findings of fair value and depriving plaintiff of its property to that extent.

34. In finding that the Commission properly eliminated from its estimates of reproduction cost and from fair value the sum of

$650,000 for compensation to promoters, or any other sum, contrary to law and the evidence.

35. In finding that the Commission made sufficient allowance in its ascertainment of reproduction cost or fair value for development cost, instead of the sum of $2,155,323.00 as shown by the evidence.

36. In finding that the Commission made any allowance in reproduction cost or fair value for Cost of Development.

37. In finding that the Commission lawfully excluded from its reproduction estimate as well as from its ascertainment of fair value the sum of $2,115,323.00 for development cost contrary to the evidence.

38. In approving the action of the Commission relative to its allowance in reproduction cost, and in fair value, for interest and taxes during construction and in rejecting the estimates thereof submitted by plaintiff, without weighing the evidence on that subject and merely because the Commission had exercised its judgment and discretion and because its conclusions were based upon substantial evidence whereby but $733,150.95 was allowed for these items instead of $1,922,915.00 as shown by the evidence.

39. In allowing in reproduction cost and fair value but $666,353.50 for engineering and superintendence, and for administration during construction as of December 31, 1916, instead of $769,075.81 as shown by the evidence.

40. In failing to value the easements of the plaintiff company in the public streets, in reproduction estimate or fair value at $2,500,000.00.

109 41. In confirming the action of the Commission in excluding from its reproduction estimates of cost and fair value all allowances for general overhead costs preceding construction, as follows: Financing for which $75,000 should have been allowed; Preorganization for which $25,000 should have been allowed; Compensation to Promoters for which $650,000 should have been allowed; and in allowing but $25,000 for Preliminary Expense instead of $50,000; and for Organization but $250,000 instead of $262,542.

42. In confirming the action of the Commission in excluding from reproduction cost and fair value all allowances for property dedicated to it and used by it in its service.

43. In failing to ascertain and declare that the easements of the plaintiff company in the public streets and places were property of the company.

44. In holding that the easements of the plaintiff company in the public streets should not be included in the reproduction estimate, or in fair value for the purpose of determining rates.

45. In finding that the Commission acted sufficiently in making its estimates of reproduction cost as of July 1, 1914, and carrying that cost as of that date as factors into its ascertainments of fair value as of December 31, 1916, for future rates.

46. In approving the action of the Commission in allowing some items or elements of value in reproduction cost and wholly excluding identical items or elements from historical cost and vice versa,

and then taking an approximate arithmetical medium between the two as the basis for fair value.

47. In finding that the action of the Commission in making deductions of indefinite and unascertained amounts for depreciation from historical cost, reproduction cost and fair value was
110 proper.

48. In confirming the action of the Commission in reducing its findings of reproduction cost and historical cost and fair value by the purely theoretical depreciation of plaintiff's property, instead of by actually ascertaining to what extent if any the property had actually depreciated and making proper allowances therefor, if found to exist.

49. In approving the action of the Commission in its ascertainments as to depreciation in adopting purely theoretical total lives for the several classes of items, and assuming like theoretical periods of elapsed lives and by deducting the latter from the former arriving at a like theoretical life remaining as representing the proportionate parts of original cost and reproduction cost respectively remaining in the property at the time of valuation, without regard to its actual value or its condition, or its serviceability for future service at the time of valuation.

50. In confirming the Commission's finding, though not supported by competent evidence and though based upon evidence with which the plaintiff was not confronted at the hearing.

51. In not reversing the findings of the Commission because they were based upon evidence not in the record and never brought to the attention of the plaintiff until after the Commission had announced its findings and the reasons therefor.

52. In sustaining the action of the Commission in not ascertaining and stating what amount, if any, it allowed for development cost, or going concern value, in reproduction cost, or what amount it deducted for depreciation in its final ascertainment of fair
111 value, and in making it impossible to ascertain what, if anything, was allowed for or deducted by reason of development cost, or going concern value, or for depreciation in its final ascertainment of fair value.

53. In holding that the statement of the Commission that "in reaching the above conclusions, the Commission has as to every element of value considered the company as a going concern in successful operation" was a sufficient or lawful ascertainment of this element of value for development cost and going concern value, or constituted a sufficient excuse for not ascertaining and stating specifically what, if anything, was allowed for development cost and going concern value.

54. In holding that the Washington Railway & Electric Company had no right to be made a party to the proceedings before the Commission or in this Court.

55. In sustaining the action of the Commission in refusing to give consideration to either the cost or value of the contractual relations existing between the Washington Railway & Electric Company and the Potomac Electric Power Company as authorized by

the act of Congress of June 5, 1900, in ascertaining either historic cost or reproduction cost or the fair value of the plaintiff's property.

56. In holding that a proper construction of the act of Congress of June 5, 1900, did not entitle the Washington Railway & Electric Company to have the electric light rates of the Potomac Electric Power Company fixed with reference to their effect on the revenues of the Washington Railway & Electric Company.

57. The judgment of the Court is contrary to the evidence and the weight of the evidence.

112 58. In disregarding the report of the cost of reproducing the plaintiff's property compiled by Harold Almert and the evidence in support thereof which was uncontradicted.

59. In dismissing the plaintiff's bill and refusing the relief asked.

60. In violating the constitutional rights of the plaintiff.

JNO. S. BARBOUR,
Attorney for Potomac Electric Power Co. &
Washington Ry. & Electric Co.

Designation of Record.

Filed November 26, 1920.

* * * * * * *

The Clerk will please prepare the transcript of the record for the appeal of the undersigned, and the following papers are hereby designated as necessary to be copied in addition to the statement of the case:

I. The Plaintiff's bill.

II. The answers of the defendant, Public Utilities Commission.

III. The answer and cross-bill of the defendant, Washington Railway and Electric Company.

IV. The answers thereto.

V. The decree of the Court dismissing the appeal, and the opinion of the Court made a part thereof.

VI. Memo: Appeal bond, approved and filed.

VII. Memo: Of extension of time for filing statement of evidence.

VIII. Memo: Of filing statement of evidence.

IX. Assignment of errors.

X. This designation.

JNO. S. BARBOUR,
S. R. BOWEN,
Attorneys for Potomac Electric Power Company,
Washington Ry. & Electric Co.

113 Supreme Court of the District of Columbia.

UNITED STATES OF AMERICA,
District of Columbia, ss:

I, Morgan H. Beach, Clerk of the Supreme Court of the District of Columbia, hereby certify the foregoing pages numbered from 1 to 112, both inclusive, to be a true and correct transcript of the record, according to directions of counsel herein filed, copy of which is made part of this transcript, in cause No. 35336 in Equity, wherein Potomac Electric Power Company, a corporation, is Plaintiff and The Public Utilities Commission of the District of Columbia, a corporation et al. are Defendants, as the same remains upon the files and of record in said Court.

In testimony whereof, I hereunto subscribe my name and affix the seal of said Court at the City of Washington in said District, this 16th day of December, 1920.

[Seal of the Supreme Court of the District of Columbia.]

MORGAN H. BEACH,
Clerk.

E. W.

114 In the Supreme Court of the District of Columbia.

In Equity.

No. —.

THE POTOMAC ELECTRIC POWER COMPANY, Plaintiff,

v.

THE PUBLIC UTILITIES COMMISSION et als., Defendants.

In order to comply with Rule 5 of the Court of Appeals of the District of Columbia and to avail to the fullest extent of all the provisions of the various sections and sub-sections of that rule intended to shorten records on appeal, save expense of copying and certifying non-essential parts thereof, and at the same time to preserve to the respective parties the full benefit of all and any portions of the original record which through inadvertence on the part of either party may not have been adequately incorporated in this statement, and which either party may hereafter deem of sufficient importance to bring to the further attention of any appellate court having jurisdiction in the premises or which any such court may desire to inspect for the purpose of clarifying the stipulation or construing it before deciding any question presented on the appeal from the final decree in this case, the following statement of the undisputed facts

thereof so far as the parties have been able to agree — the facts, and the substance of the evidence, pro and con, bearing on disputed facts and points of law raised or passed on by the court are stipulated to be as hereinafter stated; with the further agreement that either party may refer to the original record and quote any fair extracts therefrom in their respective briefs or otherwise which may have been omitted from the stipulation and which such party may deem necessary for a correct understanding of the case or any question arising therein, including the correct meaning of this stipulation and any matter covered by it, provided the exact paging of the original record from which such extracts are taken are clearly
115 indicated; with the further right to any appellate court having jurisdiction in the premises to have produced before it for inspection or examination the entire original record in this court or any part thereof desired and deemed by it to be either necessary, convenient or helpful for the correct determination of the case or any question therein.

1st. The evidence before the Supreme Court of the District was the transcript of the proceedings before the Utilities Commission of the District of Columbia "In the matter of the valuation of the Potomac Electric Power Company, Formal Case No. 47," and the opinion and findings of the Commission therein designated Order No. 208, which ascertained the historical cost of the plaintiff's property, used and useful for electric operations as of June 30, 1914, to be $9,212,513.09; the reproduction cost of that portion within the District of Columbia as of June 30, 1914, at $11,090,228.78, and of all, whether within or without, at $11,577,453.78.

Findings.

The findings of the Commission with respect to elements of value to be considered in connection with fair value as a basis for rates as of July 1, 1914, may now be summarized as follows:

1.	Historical cost of property within and without the District of Columbia, used and useful for electric operations	$9,212,513.09
2.	Cost of reproduction of physical property within the District of Columbia, used and useful for electric operations	11,090,228.78
3.	Cost of reproduction of physical property within and without the District of Columbia, used and useful for electric operations (for comparison with No. 1)	11,577,453.78
4.	Cost of reproduction of physical property within and without the District of Columbia, excluded by Commission as neither used nor useful for electric operations	627,146.60
5.	Paving included in Nos. 2 and 3 above, but not owned and not paid for by the company, and therefore to be considered as deduction from No. 2 above, in connection with fair value	49,431.00

6. Accrued depreciation as calculated with respect to historical cost (No. 1) 1,642,591.00

7. Accrued depreciation as estimated with respect to cost of reproduction (No. 2) 1,977,385.87

The Commission believes that the above amounts for accrued depreciation might be proper for deduction in case of a finding of value for purchase, but not in full in a valuation as a basis for rates. The commission finds that considerably lesser amounts should be deducted in this case.

116

8. Intangibles and cost of development. The Commission finds that some allowance should be made for some such additional elements of value, but that the amounts should be very much less than as claimed by the company.

9. Net additions to property, July 1, 1914, to December 31, 1916, inclusive $981,170.43

117 And the Commission found the fair value of the plaintiff's property as of July 1, 1914, to be $10,250,000.00, and as of December 31, 1916, to be $11,231,170.43, as follows:

(See printed opinion page 104.)

"In determining the fair value of the property of the respondent company as provided for in paragraph 7 of the act creating the Public Utilities Commission, the commission gives much weight to both the historical cost and the reproduction cost as found above. But neither of them is determinative. Each must be considered in the light thrown upon the problem by the other, and both must be considered with respect to the important matter of depreciation, and both, and particularly the latter, with respect to cost of development. Then the whole problem must be studied. It has been so studied, in the light of all the testimony adduced in the hearing in this case and of the argument submitted by counsel, both orally and in their briefs. The action of other commissions and of courts in similar cases has been carefully considered by the Commission.

"After full consideration of all the evidence in this case the commission finds the fair value of the property of the Potomac Electric Power Co. used and useful for the convenience of the public within the District of Columbia, as of July 1, 1914, to be $10,250,000.

"As heretofore set forth, the commission finds the net additions to investment in respondent company's property from July 1, 1914, to December 31, 1916, inclusive, to be $981,170.43, and therefore further finds the fair value of the property used and useful for the convenience of the public within the District of Columbia, as of December 31, 1916, to be $11,231,170.43.

"In reaching the above conclusions, the Commission has, as to

every element of value, considered the company as a going concern in successful operation."

118 *Statement.*

In an effort to comply with paragraphs 6, 7, and 8 of Section 8 of the act of Congress approved March 4, 1913, entitled "An Act Making Appropriations to Provide for the Expenses of the District of Columbia for the Fiscal Year Ending June 30, 1914, and for other purposes" which section will be referred to hereinafter as the Public Utilities Law, the Public Utilities Commission of the District of Columbia in May, 1914, organized what it designated as its valuation bureau with Professor Edward W. Bemis as director in charge. This bureau was divided into two departments; one the accounting department which had to do with the historical investigation of the various utilities of the District of Columbia, including the amount of money expended in their construction and equipment, its method of financing, growth, etc., as specified in Section 6; and the other known as the Engineering Department which had to do with ascertaining the amount of money it would require to reconstruct the said property as also required by said section.

The historic or accounting department was under the immediate charge of Mr. Sangster, as chief accountant, with an adequate corps of assistants, and the Engineering Department was under the immediate direction and control of Mr. Charles L. Pillsbury, as chief engineer, with a corps of assistants, the organization of which is set out in detail on page- V and VI of the Engineering Report.

The reports of these two bureaus were completed and submitted to the Public Utilities Commission in the month of December, 1915, in two separate reports addressed to Dr. Bemis, one comprising 893 pages of typewritten matter in three volumes being the historical report returned by Mr. Sangster; and the other comprising 5 volumes and 1,794 pages designated "Report on Cost of Reproduction
119 of Physical Property of the Potomac Electric Power Company" and returned by Mr. Pillsbury.

On May 18, 1916, the Public Utilities Commission entered its Formal Order No. 182 in the following words and figures:

120 "Public Utilities Commission of the District of Columbia.

"*Order No.* 182.

"May 18, 1916.

P. U. C. No. 1987/1.

F. C. No. 47/2.

In the Matter of a Valuation of the Property of the Potomac Electric Power Company.

"By the Commisssion: The Public Utilities Commission of the District of Columbia having carefully considered the reports of its

Valuation Bureau as to the amount of money expended in the construction and equipment of the Potomac Electric Power Company, as set forth in the three volumes entitled:

"'Potomac Electric Power Company, Report, July 1, 1914, Volume 1,'

"'Potomac Electric Power Company, Appendices to the Tables, Volume 2,' and

"'Potomac Electric Power Company, Schedules, Volume 3,'

adopts the same as its prima facie ascertainment of the amount of money expended in the construction and equipment of said company.

"The Commission having also carefully considered the report of its Valuation Bureau as to the amount of money it would require to reproduce all the physical properties of the Potomac Electric Power Company used in or useful to the business of said company in the District of Columbia and to replace all the physical property belonging to said company in the District of Columbia, as set forth in five certain volumes designated 'Report on Cost of Reproduction of Physical Property of Potomac Electric Power Company within the District of Columbia as of July 1, 1914,' volumes 1 to 5, inclusive, adopts said report as its prima facie ascertainment of the amount of money it would require to reproduce and replace said property, as aforesaid.

"The Commission having also considered the rates of depreciation as set forth in said last named volumes, adopts the same as its prima facie ascertainment of the rates of depreciation as therein set forth.

"All of the ascertainments above referred to are to be considered prima facie ascertainments as made by the Commission in accordance with its duty under paragraphs 6, 7 and 16 of the Public Utilities Law, and are adopted subject to such additions, modifications, and alterations as may be justified by any evidence adduced before it by the Potomac Electric Power Company or any other person or corporation interested with reference to the same at the public hearing hereinafter provided for.

"Under paragraph 7 of the Public Utilities Law, it is the duty of the Commission to value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation, and, under paragraph 8, it is provided that before final determination of such value the Commission shall, after notice of not less than thirty days to the public utility, hold a public hearing as to such valuation.

"It is, therefore, this 18th day of May, 1916,

"Ordered:

"That a public hearing as to the valuation of the property of the Potomac Electric Power Company within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation be held in the Board Room (Room 500) at the District Building, in the City of Washington, District of Columbia, commencing on the 26th day of June, 1916, at 10.00 o'clock a. m., and that the Potomac Electric Power

Company be given due notice thereof by the service upon it of a copy of this order, which shall contain the following notice, and the delivery to it of the copies of reports designated in said notice
121 as follows, to wit:

" 'Potomac Electric Power Company,
" '231 14th street, northwest,
" 'Washington, D. C.

" 'GENTLEMEN:

" 'Your attention is invited to the following extracts from the Public Utilities Law (Act of Congress approved March 4, 1913, Section 8, Public No. 435):

" 'Pa. 6. That the Commission shall ascertain, as soon and as nearly as practicable, the amount of money expended in the construction and equipment of every public utility, including the amount of money expended to procure any right of way; also the amount of money it would require to secure the right of way, reconstruct any roadbed, track, depots, cars, conduits, subways, poles, wires, switchboards, exchanges, offices, works, storage plants, power plants, machinery, and any other property or instrument not included in the foregoing enumeration used in or useful to the business of such public utility, and to replace all the physical properties belonging to the public utility. * * *

" 'Par. 7. That the Commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation.

" 'Par. 8. That before final determination of such value the commission shall, after notice of not less than thirty days to the public utility, hold a public hearing as to such valuation in the manner hereinafter provided for a hearing, which provisions, so far as applicable, shall apply to such hearing. The commission shall, within ten days after such valuation is determined, serve a statement thereof upon the public utility interested, and shall file a like statement with the District Committees in Congress.'

" 'Par. 16. * * * The Commission shall ascertain and determine what are the proper and adequate rates of depreciation of the several classes of property of each public utility. These rates shall be such as will provide the amounts required over and above the expense of maintenance to keep such property in a state of efficiency corresponding to the progress of the industry. * * * The Commission shall provide for such depreciation in fixing the rates, tolls, and charges to be paid by the public. * * *

" 'In the performance of the duties imposed upon it by paragraph 6, the Public Utilities Commission of the District of Columbia on or about July 24, 1914, commenced its ascertainment of the amount of money expended in the construction and equipment of the Potomac Electric Power Company and also the amount of money it would require to reproduce all of its property used in or useful to its business, and to replace all the physical properties belonging

to it in the District of Columbia. At that time you were duly notified of the commencement of this work by the Commission.

"'On May 2, 1916, the Commission furnished to you a copy of the summaries of its ascertainment of the Cost of Reproduction New and Cost of Reproduction Less Depreciation of the physical property of the Potomac Electric Power Company, used in and useful to its business in the District of Columbia.

"'In compliance with paragraph 6 of the Public Utilities Law, the Commission has ascertained the amount of money expended in the construction of the Potomac Electric Power Company, and such ascertainment is set forth in certain volumes designated as:

"'Potomac Electric Power Company, Report, July 1, 1914, Volume 1.'

"'Potomac Electric Power Company, Appendices to Tables, Volume 2.'

"'Potomac Electric Power Company, Schedules, Volume 3.'

122 Copies of these volumes are hereby made a part of this notice, as though set forth fully herein, and are furnished to you under separate cover.

"'In further compliance with paragraphs 6 and 16 of the Public Utilities Law, the Commission has ascertained the amount of money it would require to reproduce all the physical properties of the Potomac Electric Power Company used in or useful to the business of said company in the District of Columbia, and to replace all the physical properties belonging to said company in the District of Columbia, including depreciation, and such ascertainment is set forth in five certain volumes designated, 'Report on Cost of Reproduction of Physical Property of Potomac Electric Power Company within the District of Columbia as of July 1, 1914,' Volumes 1 to 5, inclusive. Copies of these volumes are hereby made a part of this notice, as though set forth fully herein, and are furnished to you under separate cover.

"'All of the ascertainments hereinbefore and hereinafter referred to are prima facie ascertainments of the Commission made from all available information, and are subject to such additions, modifications, and alterations as may be justified by any evidence adduced before the Commission by you, or any person or corporation interested.

"'Under the provisions of paragraphs 7 and 8 of the Public Utilities Law, it is made the duty of the Public Utilities Commission to value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation. In accordance with the duty thus imposed, the Public Utilities Commission of the District of Columbia will, on the 26th day of June, 1916, at 10.00 o'clock a. m. in the Board Room (Room 500), at the District Building in the City of Washington, District of Columbia, hold a public hearing as to the fair value of the property of the Potomac Electric Power Company within the District of Columbia actually used and useful for the convenience of the public at the time of said valuation.

"'At said hearing, in connection with its own ascertainment of the amount of money expended in the construction and equipment of the Potomac Electric Power Company, as set forth in the volumes on that subject hereinbefore referred to, the Commission will consider all evidence you may be advised to adduce and all evidence and information which you or any other person or corporation interested may desire to present with reference to the amount of money it would require to reproduce all the physical property of the Potomac Electric Power Company used in or useful to the business of said company in the District of Columbia and replace all the physical properties belonging to the said company, including depreciation.

"'In connection with the foregoing, the Commission will also consider all evidence which may be adduced to show what changes in or additions to its prima facie ascertainments should be made by reason of the fact that said ascertainments have been made as of July 1, 1914.

"'At the said hearing for the final determination of the fair value of the property of the Potomac Electric Power Company within the District of Columbia actually used and useful for the convenience of the public at the time of said valuation, the Commission will hear and consider all evidence and argument which you or any other person or corporation interested may present as to the foregoing matters and things, and also as to all other elements of value which should be taken into consideration by it in determining the fair value of the property of the Potomac Electric Power Company in accordance with the duty of the Commission as set forth in the Public Utilities Law, and also as to what rate of return based on fair value should be allowed to said company over and above the cost of conducting its business.

123 "'The aforesaid valuation will be made as a basis for fixing the rates, tolls, and charges of the Potomac Electric Power Company to be paid by the public, and the elements of value will be considered with especial reference to that purpose.

"'During the time between the receipt of this notification by you and the hearing herein set forth for June 26, 1916, as aforesaid, and during the hearing, all of the records of the Public Utilities Commission and all of the reports, data, and other information obtained by its officers or agents, or any of them, are open to your inspection and examination, and any information which the Commission or any of its agents or officers may have, and which you desire, will be furnished to you upon your application.'

"It is further ordered:

"That the following procedure be followed as far as practicable at said hearing.

"First. The Commission will hear all witnesses and consider all evidence adduced by the Potomac Electric Power Company relating to the amount of money it would require to reproduce all the physical properties of the Potomac Electric Power Company used in or useful to the business of said company in the District of Columbia, and to replace all the physical properties belonging to said company

in the District of Columbia, including depreciation, and will thereafter hear such evidence as may be adduced by any other person or corporation interested on the same subject. The Commission will then hear and consider any further evidence which may be adduced before it in reply to the evidence adduced by the said company or any other person or corporation.

"Second. A similar method of procedure will be followed as far as practicable with reference to the determination of the amount of money expended in the construction and equipment of the Potomac Electric Power Company.

"In connection with the foregoing, the Commission will also consider all evidence which may be adduced to show what changes in or additions to its prima facie ascertainments should be made by reason of the fact that said ascertainments have been made as of July 1, 1914.

"The Commission will then hear and consider all evidence which may be adduced by the Potomac Electric Power Company or any other person or corporation interested as to all other elements of value which should be taken into consideration by it in determining the fair value of the property of the Potomac Electric Power Company. Opportunity will be allowed for argument at appropriate stages at the proceeding.

"The Commission will also consider evidence and argument as to what rate of return based on fair value should be allowed to said company over and above the cost of conducting the business.

"The aforesaid valuation will be made as a basis for fixing and determining the rates, tolls, and charges of the Potomac Electric Power Company to be paid by the public, and the elements of value will be considered with especial reference to that purpose."

124 This order was duly served on the Potomac Electric Power Company.

On the 26th day of June, 1914, the day mentioned in said order, the Washington Railway & Electric Company, and the Potomac Electric Power Company, both appeared before the Commission.

The Washington Railway & Electric Company by leave of the Commission filed its petition as follows (see transcript, pages 15 to 30):

125 "Your petitioner is informed that it is the purpose of the Commission in this proceeding not only to ascertain and determine the fair value of the property of the Potomac Electric Power Company; the amount of money expended in the construction and equipment of the said company, and the amount of money it would require to reproduce and replace said property, but also to consider, ascertain and determine proper rates of depreciation of its property, as well as what rates of return based on its fair value should be allowed said company over and above the cost of conducting its business, all with the declared purpose that the said ascertainments will be made a basis for ultimately fixing the rates, tolls and charges of the Potomac Electric Power Company to be paid by the public, and that the elements of value will be considered with special reference thereto.

"Without admitting that it is just, fair or competent for this Commission to undertake all of these various ascertainments in a single proceeding, but denying the same your petitioner shows that, pursuant to the express provisions of an Act of Congress approved June 5, 1900, it is the sole owner of the entire outstanding capital stock of the Potomac Electric Power Company; the guarantor, principal and interest, of all of its consolidated bonds, and has contractual relations with it for the manufacture of the electric energy necessary to operate your petitioner's lines of street railway. Owing to the relations existing between the two companies as hereinafter shown, it is advised and charges that no valuation of the property of the Potomac Electric Power Company for any such purposes can be properly made which does not take into consideration and give full force and effect to these relations and to the legal obligations of the said company thereunder. It is therefore most deeply interested in all the questions proposed to be considered herein.

"Your petitioner shows that at the time that the Act of Congress approved June 5, 1900, was enacted, and long prior thereto, it was a matter of general public knowledge and was well known to Congress that the United States Lighting Company and the Potomac Electric Power Company were the only companies actually engaged in the manufacture and distribution of electric light and power within the District of Columbia; that all of the outstanding capital stock of the Potomac Electric Power Company and practically all of that of the United States Lighting Company was held in a common ownership with the controlling stock ownership of the several street railway companies mentioned in said Act, including this petitioner, then known and designated in the said Act as The Washington & Great Falls Electric Railway Company, and that each *each* of the said electric power companies at that time had contracts for the furnishing of power to this petitioner or to some of its subsidiary companies mentioned in said Act; and that with knowledge of these facts, and for the purpose of bringing about and legalizing the still closer relations thereby contemplated, and which ever since have existed between the said railway companies therein mentioned, now known as the Washington Railway and Electric Company and its subsidiaries, and such electric light companies, the said Act of June 5, 1900, was enacted.

"Your petitioner further shows that by the provisions of the said Act the said Washington Railway & Electric Company was not only authorized and empowered to acquire and hold stock in any of the street railway corporations therein specifically mentioned and to pay for the same by issuing its bonds secured by mortgage or deed of trust upon its rights of way, property and franchises, or obligations, or by issuing both to the amount of the consideration paid therefor, but it was also authorized and empowered to acquire and hold the entire capital stock and other securities of either or both of said electric companies and to contract with them for the supply of electric power to it or to any of the other street railway corporations whose shares of stock or whose property and franchises it was thereby authorized to acquire, and was further expressly authorized and

empowered as a part of any such contract for the supply of said power to exchange its stock and securities for the stock and securities of such electric power companies and to guarantee the securities of any such power companies.

126 "Your petitioner shows further that pursuant to these provisions it did issue its capital stock and other securities to a large amount, which are now outstanding and in the hands of the public, for the purpose of acquiring by exchange from their then holders the controlling stock interest as well as certain other securities of all of said street railway companies, and to acquire by exchange the entire outstanding capital stock and other securities of the said United States Electric Lighting Company and of the Potomac Electric Power Company, which two companies were subsequently consolidated into the Potomac Electric Power Company, and did guarantee the securities of the said Potomac Electric Power Company as a part of the contract for power hereinafter mentioned, and then, pursuant to the provisions of said act of Congress, pledged all of said stock of the Potomac Electric Power Company as security for the bonds of this petitioner, which are so held today.

"In the year 1906 the Washington Railway and Electric Company, being then the rightful and sole owner of the entire capital stock of the Potomac Electric Power Company, entered into a contract with it for the purpose of enabling it to erect, equip and operate a modern and adequate power plant to supply this petitioner and its subsidiary companies and the public with all the power that should be needed then or in the future, and to that end did, pursuant to the provisions of the Act of June 5, 1900, contract to guarantee both the principal and interest of the consolidated bond issue of said Company to the extent of $7,000,000, of which bonds $5,300,000 have been actually issued, the proceeds of which were used for the erection of its plant and other facilities, and actively assisted in negotiating the same. In consideration thereof, the Potomac Electric Power Company agreed to proceed promptly with the construction of said additional power house and to complete the same within three years; to equip the same, and to give the Railway Company, at its option, the right to receive from said Company as much of its electrical energy supplied by it as might be needed by this Petitioner for the operation of its railways and the railways of its subsidiary and subordinate companies, upon the payment to the Power Company of the actual cost of producing such electrical energy, based on certain elements of cost specified in said contract.

"Before said contract had long been in operation, and before any adjustments were made under it, it became manifest to the officers of both companies that the terms of the said contract as written were unfair to the Washington Railway and Electric Company, and were inadequate for the purposes of any party thereto, and that under said terms the Potomac Electric Power Company would not be able to perform its portion of the stipulations therein contained or to carry out the purposes and hopes of Congress in authorizing the unification of control, and that additional financial help was needed in order to weather the financial difficulties it was then experiencing.

Modifications of the terms of the contract were thereby made essential, and the same were accordingly made, under which, for a valuable consideration, the Washington Railway and Electric Company was relieved of the obligation of paying certain of the stipulated elements of cost to the Company and the Railway agreed to and did render to the Power Company additional extensive and valuable financial aid and assistance not contemplated or provided for in the original contract, and at a time of great financial stress and panic throughout the country. These facts are well known to this Commission and have been fully investigated by and explained to it in the proceeding before it entitled, 'In the Matter of the Joint Manufacture and Sale of Electric Current by the Washington Railway and Electric Company and The Potomac Electric Power Company, F. C. #40,' the pleadings, proceedings and evidence in which matter are now herein referred to and asked to be taken and read as a part of this petition. It loaned the Potomac Electric Power Company cash to the extent of One Million Dollars ($1,000,000.00), and guaranteed other obligations of the said Potomac Electric Power Company to an amount aggregating six Hundred and Fifty Thousand Dollars ($650,000.00), and promised to and did support it through these days to the full extent of its financial abilities.

127 "This course was was not pursued from motives of charity or philanthropy, but because it was deemed to be to the interests of both parties to the contract and of the general public and pursuant to the wise public policy expressed by said Act of Congress, and the best means of carrying out the express purpose of Congress of enabling the owners of this unified system to effect other savings and economies and was essential to put the entire property as a whole upon a firm financial basis.

"The immediate effect of this arrangement was to save the Potomac Electric Power Company at that time from loss and embarrassment. It has ever since proven of great benefit to both companies, and has enabled the said Potomac Electric Power Company to render greatly improved and cheapened service to the public.

"The foregoing contract and arrangements have been in effect for a number of years, and the fact that the Washington Railway and Electric Company, subject to the limitations of the said Act, was jointly engaged in the manufacture of power with the Potomac Electric Power Company pursuant thereto and is absolutely dependent on the validity of its contract with the Potomac Electric Power Company and its continued financial ability to carry out said contract for an adequate and economical supply of power to operate its own lines and those of its subsidiaries has been well known to Congress.

"Your petitioner shows that under the provisions of the said Act, and pursuant to the intention of Congress in passing the same, the property of the Washington Railway and Electric Company and that of the Potomac Electric Power Company have ever since its enactment and the action taken pursuant thereto been operated to all practical intents and purposes as one company, except as prohibited by said Act; that such arrangements were pursuant to

the provisions and intent of that Act and to the purposes that were primarily urged for such legislation.

"The purpose of the Act of Congress authorizing this unity of control and operation of these two enterprises was that each required a constant supply of electricity available to each at all times but not ordinarily required in its entirety at the same time by each; that the plants, apparatus and distributing equipment of each in the larger units necessary to operate each were so identical that they could be operated much more economically under a common control and from a single generating and distributing plant than separately, and that the earnings from the two enterprises so intimately related, the products from each of which entered so uniformly into the daily life of the average citizen, might well be combined and placed upon a reciprocal earning as well as operating basis, and would consequently offer a more inviting investment because it formed the basis for adequate returns on the capital invested in the stock of this petitioner.

"The only way this was attainable, short of absolute merger, was by permitting the one company whose stock was to be held by the public, to own the capital stock of the other. This was the plan authorized by the said Act of Congress and followed to the letter in subsequently financing both companies. The investment of each stockholder in the Washington Railway and Electric Company thus in fact represents a single investment in both of these similar enterprises. It was upon the faith of the investing public in the permanency of this stabilizing arrangement sanctioned by Congress and accepted by the Companies that investments in the securities of the Washington Railway and Electric Company were invited and secured. Upon it these securities have subsequently been dealt with by the public. It is through the stock of the Washington Railway and Electric Company that the profits of the Potomac Electric Power Company, as well as those of its own and its subsidiary railways, are distributed to the several investors in this enterprise as a whole. This right of the Washington Railway and Electric Company, and through it the right of its stockholders to receive adequate return upon their investments and to have the value of the investments and the returns thereon equalized and stab-lized constitutes property and an important element in the value of those investments, and cannot be disregarded without violating the intent of Congress and the Constitutional rights of this petitioner and its stockholders.

128 "It is inconceivable, therefore, that Congress could have intended that any valuation of the property of the Potomac Electric Power Company, ordered with a view to the establishment of rates to be charged the public, could or would be attempted without reference to the effect that such rates would have upon the outstanding stock and securities of the Washington Railway and Electric Company. It is insisted that preliminary to and coincident with any of the proposed ascertainments should be made relative to the other property of the Washington Railway and Electric Company, including its other subsidiaries.

"As shown by the proceedings of Congress attending the enactment of the act of June 5, 1900, permitting this petitioner to acquire the stock of the electric power companies, it was a fact, known to Congress, that this petitioner and the allied street railway lines which it was to maintain included many miles of suburban railroad which for years had not been and for years could not be self-sustaining; and the object of the legislation in question was to enable this petitioner, through its ownership of stock in revenue yielding corporations, electric power companies included, to be enabled to bear the burden of these non-self-sustaining lines; and it is a further fact that the burden of these lines was, and continues to be so great that since the action taken pursuant to the said act of June 5, 1900, up to the present time, the average annual dividend upon the stock of this petitioner, including the profits derived from the Potomac Electric Power Company, has been less than 3½%. The right thus given by the legislation in question to be compensated by the revenue of the profit producing companies, the electric light and power companies, included, for the losses incurred and to be incurred through the unprofitable lines of the system, and the action of this petitioner in maintaining those unprofitable lines in reliance thereon constituted a contract between the government and this petitioner, in which contract its stockholders are equitable part owners, to have the profits realized from the electric light and power companies, continue a revenue contributing factor in the business of this petitioner, and makes it legally obligatory that any rates established for the Potomac Electric Power Company shall be fixed by the Commission with reference to the proper and reasonable contribution to the revenues of the Petitioner to which it is entitled from the facts stated.

"The rights of the Washington Railway and Electric Company under said Act of Congress and said contract are valuable and vested rights, entitled to the protection of the guaranty of the Constitution of the United States in that regard, and any adjustment of the rates of the Potomac Electric Power Company which would interfere with the right or ability of that company to carry out the contract arising out of the Act of June 5, 1900, would thereby deprive it of its property without compensation and without due process of law, and seriously impair its ability to render adequate service to the public at the present rates which are established by law and cannot be increased by this Commission. Whether or not Congress may legally terminate or impair that contract, it has never attempted to do so, and it is clear, we submit that until Congress shall do so it is not within the power of this Commission to abrogate it either in terms or indirectly by making valuations. The securities of this petitioner have been issued and dealt with by the public upon the faith and credit of said Act of Congress and said contract, and it therefore believes and charges that any purpose or effort of this Commission to value the property of the Potomac Electric Power Company as a basis for rate making or any fixing of rates without taking into consideration the relations aforesaid would be improper and contrary to the said Act of June 5, 1900, and con-

trary to the Act creating the Public Utilities Commission, contrary to natural justice and right, and in contravention of the rights of the stockholders of the said Washington Railway and Electric Company.

"It is therefore prayed that the petitioner be admitted as a party respondent to this proceeding; that the property of the Washington Railway and Electric Company should be valued at the same time with the property of the Potomac Electric Power Company or prior thereto, as in no other way can the capitalization of the Washington Railway and Electric Company receive that protection which
129 the law requires shall be given to the legally issued stock and securities issued by this petitioner and invested in by the public under sanction of the Act of Congress of June 5, 1900, under which the relations have arisen and which they are entitled to continue. Any proceeding by this Commission to value the property of the Potomac Electric Power Company without consideration of these conditions would be destructive of its rights and property and in contravention of law.

"All of which is respectfully submitted.

"WASHINGTON RAILWAY AND ELECTRIC COMPANY,
"By CLARENCE P. KING,
President.

"JOHN S. BARBOUR,
"J. J. DARLINGTON,
"CHAS. A. DOUGLAS,
"S. R. BOWEN,
"Counsel for Petitioners."

130 And the Potomac Electric Power Company filed its answer as follows (see transcript, pages 31 to 38):

131 *"Answer of the Potomac Electric Power Company.*

"This respondent, the Potomac Electric Power Company, for answer to Order No. 182 issued by the Honorable Public Utilities Commission in the above entitled proceeding under date of May 18th, 1916, and served on this Respondent, together with the letter and notice therein incorporated, says:

"1. That this Respondent does not concede, but, on the contrary, denies the right of the Commission, apparently assumed in said order and the accompanying notice, to combine in a single proceeding the valuation investigation contemplated by paragraphs six, seven and [illegible] of the Public Utilities Law with the proceeding contemplated by paragraph sixteen thereof for the ascertainment of adequate rates of depreciation of the several classes of its property to be applied in the future. Not until after the Commission shall have definitely ascertained and determined the present value of the several classes of Respondent's property and the quantities and condition thereof, would it, or this respondent, be in a position to take up or intelli-

gently consider the question of the proper rates of depreciation to be applied in the future to its several classes of property.

"2. Neither does it concede, but, on the contrary, denies the right of the Commission, apparently assumed therein, to 'adopt' 'prima facie ascertainments' of the amounts of money expended in the construction and equipment of this Company, or required to reproduce and replace its property, or to 'adopt' 'prima facie ascertainments' of the rates of depreciation upon ex parte investigations by the Commission or its employes or bureaus 'made from all available information,' none of which is specified or incorporated in the record, without previous notice and opportunity to examine the evidence and cross examine the witnesses upon whose evidence or findings said ascertainments are based, if such action implies the purpose of the Commission to attach any probative weight or effect whatever to such ex parte 'ascertainments' or reports or such unspecified and unintroduced 'available information' and to thereby necessarily deny this Respondent any opportunity to hear and cross examine witnesses or know upon what evidence, if any, the 'ascertainment' is based or to rebut or dispute its correctness, its competency or its sufficiency. It is advised, believes and charges that such a course would be not only violative of the letter and spirit of the Public Utilities Law but also violative of the constitutional rights of this defendant.

"3. This Respondent is further advised, believes and charges that if it is competent at all for the Commission to hear evidence ex parte and to reach prima facie, or even tentative conclusions in its absence and without opportunity on its part to hear the evidence or cross examine the witnesses against the petitioner, which it denies, it would even in that event be entitled in advance of the proposed hearing to notice not only of the tentative ascertainment of all the value contemplated by the statute, but also to a statement in detail of the several elements recognized and the values put upon each by the Commission or its Valuation Bureau and proposed to be included in the aggregate of value to be ascertained, as well as a tentative statement of such aggregate, all to have force and effect merely of a statement or notice of the facts sought to be established by the evidence to be offered by the Commission, to the end that prior to the hearing this Respondent may know of the contentions it will have to meet, may determine for itself upon what points counter evidence, if any, may be necessary, and may have full time to prepare and free opportunity to direct its evidence thereto, either by way of attacking any particular item or items or the values fixed thereon or to supplement the same by other and omitted elements of value if they are so advised.

132 "4. This Respondent is advised, believes and charges, as a matter of its constitutional rights and in order that its property shall not be taken without due process of law, that such tentative valuations should be stated as nearly as possible as of the date of the proposed hearing and not as of a date approximately preceding the same two years, as is attempted to be done in the reports referred to in said order, and especially is this true in view of the substantial

and apparently permanent increase in the cost of all labor, material and construction work within the past two years.

"5. This Respondent is further advised, believes and charges that not until there has been a final determination of the value of its property as contemplated by paragraph eight of the Public Utilities Law, and not until after the Commission shall have legally, definitely and finally ascertained and determined proper rates of depreciation of the several classes of its property adequate to provide the amounts required to keep the same in a state of efficiency corresponding to the progress of the industry and above the expenses of maintenance should the Commission undertake to consider the question of the rate of return to which this Company shall be entitled on its investment or the rates to be charged the public based on all of the elements which should go into such a rate.

"6. Without waiving these objections to the method of procedure outlined in Order No. 182 of the Honorable Commission and the notice accompanying the same, but insisting thereon, this Respondent states further that the same is insufficient and incomplete in that it does not furnish this Respondent with its tentative 'ascertainment of this Respondent's outstanding stocks, bonds, debentures and indebtedness' or the amounts respectively thereof or the date when issued; to whom issued, to whom sold, the price paid in cash, property or labor therefor; what disposition was made of the proceeds, by whom the indebtedness is held, the amount purporting to be due thereon; the floating indebtedness of this Respondent; the judicial or other sales of its property or franchises, the amounts purporting to have been paid thereon, and the detailed ascertainment of the gross and net income of this Respondent, from all sources, the amounts paid to its employes and the maximum hours of continuous service required of each class, all of which are required to be ascertained by paragraph six and to be given proper weight in arriving at the aggregate value of all of the property of this Respondent as contemplated by paragraph seven at the time of said valuation.

"7. This Respondent is further advised that said tentative valuation should be stated in detail, showing what elements of valuation have been considered and the values placed upon them severally, before the Commission shall have perfected its jurisdiction to hear evidence thereon preliminary to the final determination of such valuation contemplated by paragraph eight.

"8. This Respondent further avers and says, without waiving any of the objections hereinbefore stated, that it cannot reply more specifically at present to even the restricted elements of valuation referred to in the reports of the Commission's Valuation Bureau contained in and made a part of Order No. 182 aforesaid and the accompanying notice than to say it denies the truth, accuracy and fairness of the said reports and each item thereof, as well as the results shown by them, and Respondent calls for and requires strict proof thereof. That this Respondent cannot now point out in detail the particulars wherein said reports depart from the facts and do such grave injustice to this Respondent, because it has not had sufficient time to examine and analyze the same. That when said notice and

reports were served on Respondent, it promptly made application to the Commission for copies of the same in order that its engineers and accountants might go over and check the same. These copies were received from the Commission in part on the 31st day of May, 1916, and the residue the 2d day of June, 1916, and this Respondent says that its said accountants and engineers, with an adequate
133 corps of assistants, have been working on the same continuously since comparing the same with Respondent's data, but up to this time they have not been able to proceed further than to ascertain that there are large and serious discrepancies prejudicial to this Company. They have not had the time absolutely necessary to analyze the said figures and locate the cause of said discrepancies with sufficient accuracy to enable them advantageously to avail themselves of the offer of the Commission contained in said order, to permit inspection of the records of the Public Utilities Commission. This Respondent desires to avail itself of this offer as soon as the analysis by its engineers and accountants can proceed to a point where it can do so intelligently, and for that reason, without waiving any of the objections aforesaid, now respectfully asks the Commission for a reasonable postponement of this hearing until the said reports of the Valuation Bureau of the Commission may be properly examined and analyzed, and opportunity afforded to present such further answer or objections as may be necessary.

"All of which is respectfully submitted.

"POTOMAC ELECTRIC POWER COMPANY,
"By CLARENCE P. KING,
President.

JOHN S. BARBOUR,
CHAS. A. DOUGLAS,
S. R. BOWEN,
Counsel for Respondent.

134 And also moved the Commission for a continuance of 90 days within which to examine the report of the accounting and engineering departments of the Commission's valuation bureau which had been served on it. Thereupon the Commission reserved a formal reply to the petition of the Washington Railway & Electric Company "until some later session of the Commission in these hearings" and refused a three months adjournment of the hearing but adjourned the further hearing until July 3, 1916, to hear argument on the method of procedure to be adopted on which day the Potomac Electric Power Company by leave of the Commission filed an amendment to its answer as follows:

135 "This respondent, the Potomac Electric Power Company, by leave of this Honorable Commission first had an- obtained, files this amendment to its original answer, filed June 26th, 1916, in the above-entitled proceedings, to-wit:

"In paragraph 8, in the fifth line from the top of the page of its said original answer, after the word "thereof" insert:

"'This Respondent further says that, as shown by sworn reports

of this Respondent through its proper officers made to this Honorable Commission pursuant to law and filed with it and now among its records, which are asked to be read as a part thereof, Respondent has duly issued and there is now outstanding, stock and bonds aggregating the sum of $13,000,000.00; that all of these stocks and bonds were issued bona fide and pursuant to law, for capital charges, and the proceeds thereof were expended for the legitimate purposes of the corporation in serving the public, and their due issue was regularly reported to Congress prior to the creation of this Honorable Commission, in addition to which it has expended since the creation of this Honorable Commission, for additional capital charges out of Treasury funds, a sum exceedng $600,000.00, for which application has been made to this Commission for the approval of debenture bonds; and while this Respondent believes and alleges that a proper valuation will show the true value of its property as of today to be in excess of $16,500,000.00, that in the absence of clear and positive proof to the contrary these outstanding securities must be taken as indicative of the minimum value of the physical property of this Respondent, which must in no event be taken to be less than the aggregate of its said outstanding stock and bonds and said capital expenditures, and the same must be treated as and receive the protection of legally issued securities.' "

"All of which is respectfully submitted." We ask leave to let our formal answer be amended by the filing of that.

"The amendment above referred to was thereupon handed by counsel to the Commission.)

136 The Potomac Electric Power Company through its counsel then took exception to the method of procedure outlined in the Commission's order on the ground that it assumed the prima facie correctness of the reports of its valuation bureau and apparently casts upon the company the burden of showing its correctness (see transcript pages 89 to 174); and the Commission reserved its decision on this question and adjourned until Thursday, July 6, 1916. (See transcript page 176.)

On July 6, 1916, the Commission announced its conclusions amending the method of procedure as first outlined as follows:

137 Chairman Kutz: The Commission has carefully considered the answer, as amended, of the Potomac Electric Power Company and the arguments submitted by its counsel.

The Commission believed that the procedure outlined in the order would tend to eliminate all matters of valuation as to which there is no difference of opinion between the Commission and the company. Such agreed matters would appear in the record as agreed facts. Upon all matters wherein there was a difference between the tentative valuations as made by the Commission and the valuations to which the company believes itself entitled, evidence would be taken.

In order to reduce if possible the volume of the work and bring the points of difference immediately before the Commission, copies of the schedules of reproduction and depreciation as made by the

Engineering Division of the Valuation Bureau, and the original cost account as compiled from the books of the company, have been given to the company with the expectation that it would be able to point out such differences promptly at this proceeding and be able to present evidence in support of any position it might assume as to the same. The Commission cannot know what these differences are until they are pointed out by the company.

The procedure suggested related entirely to the order in which this evidence could be most conveniently and promptly introduced, and was intended to promote convenient and expeditious action without interference with those substantial principles of justice which require that the essential rules of evidence by which rights are asserted or defendant should be observed, and that both sides of every controverted question should be heard and the final conclusion reached by the Commission established upon as clear and satisfactory proof as possible.

The company has objected to this procedure and in its answer denies the truth, accuracy and fairness of the reports of the Engineering and Accounting Departments of the Valuation Bureau of this Commission, as well as the results shown by them. It asserts that these reports do it grave injustice and that there are large and serious discrepancies prejudicial to it, and that it is unable at present to point out the same.

In view of these objections and statements of the Company which are now a part of this record, and in order that no question may remain as to the adequacy and fairness of this proceeding, the Commission will change the order of its procedure originally suggested and will proceed to receive evidence as to the method adopted in arriving at the results set forth in the inventories, schedules and accounts contained in the report of the engineering and accounting departments as described in the order for this proceeding, and the accuracy and fairness of the same, and to that end will commence the taking of testimony in this case by placing upon the witness stand the proper officers of the engineering and accounting departments of the Valuation Bureau of this Commission.

138 Thereafter on the same day, the Commission heard argument upon the petition of Washington Railway & Electric Company (See transcript pages 181 to 237); and reserved its decision on this question until the next session and adjourned until Tuesday, July 11th, (See transcript page 239) which adjournment was subsequently extended to Thursday, July 13th. On this date after hearing further argument from its own counsel on the petition of the Washington Railway & Electric Company, the Commission announced its conclusion in the following language. (See transcript page 258.)

"In the opinion of the Commission, the Public Utilities Law requires that the property of each public utility corporation in the District of Columbia be separately valued, and as the Washington Railway & Electric Company is a separate corporation, being prohibited by law from acquiring the property or franchises of the Potomac Electric Power Company, the Commission rules that it should

not be made a formal party to this proceeding and that its property should be separately valued.

"The Commission will, however, give the Washington Railway & Electric Company, before this proceeding is closed, an opportunity, as set forth in the order for this hearing to present any information or arguments which it desires the Commission to consider in connection with the valuation of the property of the Potomac Electric Power Company."

And thereupon Mr. Charles L. Pillsbury was called as a witness on behalf of the Public Utilities Commission and having been first duly sworn, testified that he is a resident of Minneapolis, Min.; 44 years of age; was a consulting engineer, engaged in private practice for 10 years, consecutively and periodically before that, and thereupon he stated his qualifications as being a full member of the American Society of Civil Engineers; American Society of Mechanical Engineers; American Institute of Electrical Engineers;
139 the Engineering Division of the American Electric Railway Association; the American Society of Heating and Ventilating Engineers, and ex-president of the Engineers Club of Minneapolis; that he had 20 years of consecutive and strenuous engineering experience and prior to that was engaged during vacation for 4 or 5 years on power plant operation and heavy electrical construction. He was lecturer of the University of Minnesota, and had been engaged to reconstruct various power plants and was city electrician of Minneapolis until the year 1899, which qualifications are set out at length in the transcript pages 261 to 271; and that during a considerable portion of the years 1914-1916, he was employed by the Public Utilities Commission of the District of Columbia as chief engineer of the valuation staff engaged in making an inventory of and determining the cost of reproduction, accrued depreciation, etc., of the physical properties of the Potomac Electric Power Company, the two gas companies, the several electric railway companies of the District of Columbia, and in pursuance of that employment made a report with reference to the cost of reproduction of the physical property of the Potomac Electric Power Company which is contained in 5 volumes, a description of which work is set out in the preferatory pages of volume I numbered from I to XXXII entitled "Basis and Conclusion" followed by summaries shown on the 10 following pages, all of which are to be inserted here at length as follows—

140 Copy.

Dr. Edward W. Bemis,
Director, Valuation Bureau,
Public Utilities Commission,
District of Columbia.

DEAR SIR:

In submitting to you this report of the Engineering Department with respect to reproduction and depreciation of the physical properties within the District of Columbia, of Potomac Electric Power

Company, it seems desirable that a concise resume be set forth of the premises of our determinations, together with the final principal conclusions derived.

We therefore submit the following

Basis and Conclusions.

141 Authorization and Purpose.

An Act of Congress (Public No. 435), approved March 4, 1913, created, in Section 8 thereof, a Public Utilities Commission of the District of Columbia. Paragraph 6, Section 8, provides—

"That the commission shall ascertain, as soon and as nearly as practicable, the amount of money expended in the construction and equipment of every public utility, including the amount of money expended to procure any right of way; also the amount of money it would require to secure the right of way, reconstruct any roadbed, track, depots, cars, conduits, subways, poles, wires, switchboard, exchanges, offices, works, storage, plants, power plants, machinery, and any other property or instrument not included in the foregoing enumeration used in or useful to the business of such public utility, and to replace all the physical properties belonging to the public utility. It shall ascertain the outstanding stock, bonds, debentures, and indebtedness, and the amount, respectively, thereof, the date when issued, to whom issued, to whom sold, the price paid in cash, property, or labor therefor, what disposition was made of the proceeds, by whom the indebtedness is held, so far as ascertainable, the amount purporting to be due thereon, the floating indebtedness of the public utility, the credits due the public utility, other property on hand belonging to it, the judicial or other sales of said public utility, its property or franchises, and the amounts purporting to have been paid, and in what manner paid therefor, and the taxes paid thereon."

Paragraph 7 of Section 8 reads as follows:

"That the commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation."

Your accounting department under your direction has investigated the matter of "the amounts of money expended", or *actual cost* of the property, while it has been the work of your engineering department, as directed by you, to ascertain as nearly as possible "the amount of money it would require to * * * reconstruct * * * the property * * * used and useful" or *cost*
142 *of reproduction*, this engineering investigation, however, being limited to *physical* property only.

Paragraph 7 provides that the commission shall perform the judicial function of determining the *value* of the property "at the fair value thereof at the time of the valuation," presumably

after full consideration of actual cost, reproduction cost of tangibles and intangibles, and other elements of value set forth in Paragraph 6, and such as have a bearing upon "fair value." In accordance with prevailing court decisions, you interpret this to include consideration of the state of depreciation of the property. For this reason and also because the Act specifically requires (in Paragraph 16) that "The commission shall ascertain and determine what are proper and adequate rates of depreciation of the several classes of property," you instructed the engineering department to ascertain as nearly as possible the amounts and percentages of annual depreciation and the depreciation as accrued to date, of the various classes of physical property.

This engineering report therefore purports to set forth, with respect to the various parts of the physical property of Potomac Electric Power Company, used and useful for electric operations within the District of Columbia, the following:

Detailed Inventory.
Cost of Reproduction.
143 Cost of Reproduction Less Accrued Depreciation.
Annual Rates and Amounts of Depreciation.

It is assumed that this information will be adopted by the commission to several purposes contemplated by the Act referred to, and including the regulation of rates for service rendered.

Date of Determination.

The inventories, cost of reproduction, accrued depreciation, and depreciation rates and amounts, are as of July 1st, 1914.

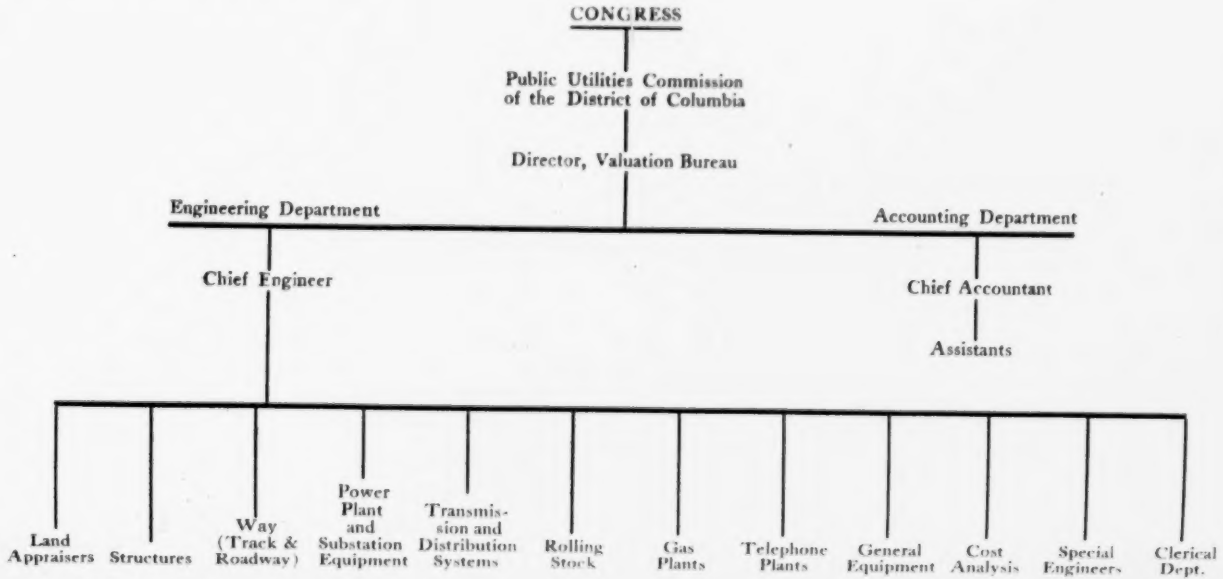
The actual work of inventorying the property was begun June 1st, 1914, and was continued thruout the year 1914, and the first half of the year 1915. Care was taken, however, to exclude from the inventory all additions to property made subsequent to July 1st, 1914, and to base the report upon property conditions as of that date where changes were made subsequently.

Organization.

There was no specific organization or staff for the work in connection with Potomac Electric Power Company only. The organization of the major divisions of the engineering department for the investigation of all the public utilities of the District of Columbia is, in a general way, indicated on the following chart, while the names and assignments of the principal members of the staff who were engaged on the Potomac Electric Power Company investigation are indicated on the page next following.

Organization (Cont'd)

Chart—Organization for All Utilities.



Edward W. Bemis, Director, Valuation Bureau.

Engineering Staff (for P. E. P. Co. Investigation).

Name.	Assignment.	Title.
Charles L. Pillsbury	In Charge	Chief Engineer.
E. G. Minder	Cost Analysis	Department Head.
A. Q. Smith	" "	Asst. Engineer.
E. G. Minder	Structures	Department Head.
W. A. Walker	"	Asst. Engr. in Charge.
C. C. Jones	"	Asst. Engineer.
C. W. Sommerville	"	Asst. Engineer.
C. M. Winbigler	"	Asst. Engineer.
C. L. Jackson	"	Asst. Engineer.
W. G. Hooper	Power Plants & Substations	Department Head.
F. S. Jones	" " " "	Special Engineer.
W. P. Bear	" " " "	Asst. Engineer.
M. G. Benjamin	" " " "	Asst. Engineer.
L. E. Turner	Transmission & Distribution	Department Head.
D. H. Lyford	" "	Asst. Engineer.
H. B. Fredrickson	" "	Asst. Engineer.
O. L. Housel	" "	Asst. Engineer.
G. O. McCoy	" "	Asst. Engineer.
F. S. Jones	General Equipment	Department Head.
W. T. Field	" "	Asst. Engineer.
J. F. Ward	Furniture	Asst. Supt. Dist. Bldg.
Dr. C. D. Robinson	Stable Equipment	Dist. Veterinarian.

Public Utilities Commission.—*Continued.*

Edward W. Bemis, Director, Valuation Bureau.

Engineering Staff (for P. E. P. Co. Investigation.)

Name.	Assignment.	Title.
J. W. Beale	Stable Equipment	Supt. Engr. Stables.
W. P. Richards	Land	Assessor, D. C.
A. McKenzie	"	Asst. Assessor.
E. W. Oyster	"	Asst. Assessor.
W. F. Beale	"	Asst. Assessor.
E. M. Talcott	"	Asst. Assessor.
B. F. Adams	"	Asst. Assessor.
C. F. Turner / M. E. Tabor	Clerical	Head Clerk.
Raymond Richards	General	Statistician.
Walter Cooper	"	Secretary to Chief Engineer.

NOTE.—Draughtsmen, stenographers, computers, clerks and field assistants not included. Specific costs compiled and analyzed by all departments; costs of general application principally by cost anaylsis department.

146 *Co-operation.*

While the officials and employees of the Company were courteous in their dealings with us, unfortunately the Company, acting on the advice of its attorneys, declined to co-operate and in most cases politely declined to furnish specific information regarding the property except as to ownership, where ownership was in doubt, and except as to such information as was afforded by the official books, records and drawings on file in the Company's offices, and which were open to our inspection. This peculiar and unusual attitude on the part of the Company constituted a very serious handicap, materially increasing the cost and delaying the progress of our work and rendering it much more liable to error than would otherwise have been the case, especially in view of the incomplete nature of the available records and data.

All departments of the Public Utilities Commission and various bureaus and departments of the District of Columbia co-operated with us in most friendly and effective manner. The Assessor of the District, Mr. W. P. Richards, and his assistants, appraised the land; Assistant Superintendent of District Building Mr. J. F. Ward, and his assistant, appraised furniture of general equipment; Dr. C. D. Robinson, District Veterinarian, and J. W. Beale, Superintendent of Engineer Stables, appraised stable equipment; and the surface, water, electrical and other engineering departments furnished us with records, maps, etc., of considerable value in our work.

147 Various departments furnished clerical assistance at the close of our work also, which we wish to acknowledge with appreciation.

Your accounting department, and especially Mr. Andrew Sangster, Chief Accountant, co-operated with us freely and effectively.

Basis and Procedure.

The results herein set forth have been determined as follows:

First. A careful, detailed inventory of the physical properties was made independently of the Company.

Second. The Company's available official records and data were examined in detail for facts relative to indentification and description of inventory items, costs and depreciation.

Third. Depreciation surveys were made in the field.

Fourth. A study was made of the expected lives of property items.

Fifth. Costs of materials and labor were compiled and analyzed.

Sixth. Costs of apparatus, materials, labor, etc., were applied to the inventory items.

Seventh. Contractors' percentage was added to totals or groups of costs where such items were considered as installed by a

148 contractor.

Eighth. All items of the inventory, priced as above, were depreciated by deriving and deducting accrued depreciation to date.

Ninth. To the total base costs as above, certain proper and necessary general costs of the owner (overhead charges) were added.

Tenth. The general costs of the owner (overhead charges) were depreciated by deriving and deducting accrued depreciation to date.

Eleventh. Materials and supplies on hand and working capital as deducted, were then added to the totals derived as above, thus finally giving total cost of reproduction and cost of reproduction less depreciation.

The various steps and the bases of these processes are briefly set forth under various headings, as follows:

Inventory.

A careful field inventory was made of all parts of the property excepting materials and supplies on hand, and electric meters. This inventory was made with great care and in much detail, on special forms printed for the purpose. The data obtained in this manner was then largely condensed and summarized for pricing.

Classifications and Divisions.

The inventory and the summaries of costs were separated into the classifications as set for in "Uniform System of Accounts", as prescribed by the Interstate Commerce Commission for Electric
149 Corporations in the District of Columbia, under date 1909.

But to faciliate the work, especially as the inventories of several utilities were made simultaneously, the inventories were taken and the work largely carried out in certain major divisions, corresponding to the departments of the engineering organization, namely: A—Land, C—Structures, D—Power Plant and Substation Equipment, E—Transmission and Distribution Systems, G—General Equipment. To these was added, H—General Costs.

Land (A).

This division comprises Interstate Commerce Commission Classification account No. E-300—Land Devoted to Electric Operations.

In answer to our written requests for information as to ownership of land, the Company furnished us with lists of plots, of which they claimed ownership. These were compared with the records of the District of Columbia, and the inventory compiled therefrom. One plot of ground, namely, Parcel 151/21 (formerly Graceland Cemetery), of which the Company claimed ownership, (although the District records do not contain information to establish such ownership), has been excluded for the reason that, in our opinion, this parcel of land more properly belongs to Interstate Commerce Commission classification account E-340—Land in Other Departments, i. e., land not devoted to electric operations. This matter should be further investigated after the Company's claims as to future use

are made known. There are certain other plots of land in-
150 cluded where some doubt as to (future) usefulness for electric operation arises, but which were included for lack of information as to the Company's claims or intentions in the matter.

Inventory of land with plats is included in Part III of this report. By order of the Commission, land was appraised by the District Assessor and his assistants, the amount as appraised in each case, representing the normal price such as, in the opinion of the assessor, would be paid by a willing buyer to a willing seller in a bona fide sale with no special inducements either to sell or buy.

Structures (C).

This division comprises Interstate Commerce Commission classification accounts E-305—General Structures, E-308—Power Plant Buildings, and E-317—Substation Buildings.

Where plans and specifications of buildings were available, they were carefully checked with the respective buildings in all important details and dimensions, and then used on the ground in conjunction with detailed field surveys of the buildings themselves. In all cases, buildings were "piece billed," that is, complete bills of material for each building were compiled and priced item by item.

151 In inventorying brick work, for illustration, complete dimensions were taken from which the number of cubic feet of brick was determined. The number of brick per cubic foot was determined by actual count in representative locations in each building. From this data the number of brick in the respective walls was derived. Each kind of brick work, such as common, face, backing, etc., was listed separately. Deductions were made for all openings.

In inventorying concrete work, all quantities were measured to determine the volume and listed under respective classifications, such as footings, slabs on ground, heavy foundations, beams, etc. Plain concrete was listed separately from reinforced concrete, and the reinforcing steel was also set forth independently. Forms were not included with concrete, but were listed separately under various divisions, such as slabs, columns, beams, walls, etc., and on basis of square feet of contact surface.

Quantities of structural steel were determined in the field, giving size, length, shape and weight, classified according to usage, and reduced to weights in pounds.

A full bill of material was made of carpentry.

Each piece of millwork, such as doors, windows, etc., was sketched and dimensioned, and priced as a whole, including glazing, painting, hardware, etc.

152 A summary of the field inventory of each building, with unit costs applied, is included in Part III of this report.

Power Plant and Substation Equipment (D).

This division comprises Interstate Commerce Commission classification accounts E-309—Furnaces, Boilers and Accessories, E-310—

Steam Prime Movers, E-314—Electric Generators, E-315—Accessory Electric Power Equipment, E-316—Miscellaneous Power Plant Equipment, and E-318—Substation Equipment.

All power plant and substation equipment was examined and inventoried in detail. Every machine and individual piece of apparatus was separately listed and described. Switchboards, conductors, accessories, piping, etc., were detailed, and bills of materials prepared.

A detailed inventory of each plant with unit costs applied, (summaries only of piping, etc.) is inculded in Part III of this report.

Transmission and Distribution (E).

This division comprises Interstate Commerce Commission classification accounts E-319—Poles and Fixtures, E-320—Underground Conduits, E-321—Transmission System, E-322—Distribution System, E-323—Line Transformers and Devices, E-324—Electric
153 Services, E-325—Electric Meters, E-326—Electric Meter Installation, E-327—Street and Park Lighting System, E-328—Commercial Arc Lamps, E-329—Glower Lamps, and E-333—Other Tangible Electric Capital.

The District of Columbia was divided into two hundred and twenty-two (222) sections, a map of each section was prepared, and the corresponding areas carefully surveyed in the field. The property items and descriptions thereof were entered upon special printed inventory forms prepared for the specific purpose, and poles, overhead lines, underground conduits, manholes and handholes, were also indicated upon the section maps. All manholes (and handholes) were opened, examined, sketched and dimensioned, conduit ends so exposed were noted and sketched, cables in manholes were measured for diameter and length, and exterior characteristics noted. Conduit runs from manhole to manhole were accurately measured. In the same way, poles, pole fixtures, overhead wires, transformers, etc., were dimensioned and listed.

All parts of property of the transmission and distribution systems of the Company, with the exception of meters, were inventoried in the field. This work was carried out in considerable detail. To facilitate the work, various items having quite a number of variations
were reduced to arbitrary types and so appear in the inventory
154 herewith. The tpyes are described in key sheets forming a part of the inventory.

Great difficulty was experienced in detailing underground cables, owing to absence of co-operation or assistance on the part of the Company, lack of available Company records, and the fact that the cables, being in service, could not be opened up for internal inspection. Because of these conditions, much time and effort was expended in the effort to determine with reasonable accuracy the capacities and make-up of cables.

Meters in service were determined from a study of the Company's records.

The inventories of the various classes of property of transmission

and distribution system were summarized, and unit costs were then applied. This priced inventory, together with the corresponding section maps, is included in Part III of the report. An unpriced inventory applying to the following Interstate Commerce Commission accounts is also included in Part III: E-319—Poles and Fixtures, E-320—Underground Conduits, E-321—Transmission System, E-322—Distribution System, E-323—Line Transformers and Devices (except those in stock), and E-327—Street and Park
155 Lighting System. Transformers in stock and the following Interstate Commerce Commission accounts are listed only in the priced summary first referred to, namely: E-324—Electric Services, E-325—Electric Meters, E-326—Electric Meter Installation, E-328—Commercial Arc Lamps, and E-329—Glower Lamps; also electric advertising signs under E-333—Other Tangible Electric Capital. No item was found of E-330—Electric Motors and Heaters. E-331—Electric Tools and Implements, and E-332—Electric Laboratory Equipment, are inventoried and priced under inventory division "General Equipment."

As stated under heading "Property Not Included," certain transmission lines and feeders or parts thereof within the District but for use only in connection with energy transmitted without the District are not included.

Street and Park Lighting System (E).

Attention is called to the fact that property items included under this heading (Inventory Division—Transmission and Distribution) are only those so designated in the corresponding Interstate Commerce Commission classification. Conduits, and manholes for all purposes are listed only under classification Underground Conduits, as provided by Interstate Commerce Commission classification. Ap-
paratus of Account E-318—Substation Equipment,
156 & 157 used exclusively for street and park lighting, is set forth independently in Detail Summaries of Power plant and Substation Equipment, Volume I, and also in priced Detail Inventory, Part III of this report.

General Equipment (G).

This division comprises Interstate Commerce Commission classification accounts E-306—General Office, General Shop, General Store, and General Stable (or Garage) Equipment, E-331—Electric Tools and Implements, and E-332—Electric Laboratory Equipment.

All of this equipment was inventoried in the field. Detailed priced inventories of all are included in Part III of the report.

Cost of Reproduction.

The Act of Congress referred to, specifically provides that "the amount of money expended," or *actual cost*, and "the amount of money it would require to * * * reconstruct," or *reproduction*

cost, should be independently determined, together with other elements of value. Therefore, cost of reproduction has been considered in its strict sense, unmodified by considerations of past actual costs, procedures or physical conditions, except as such information was an aid in determining present costs and processes.

158 By "cost of reproduction," or "reproduction cost" is herein meant the estimated normal cost to acquire the lands and reproduce the substantially identical used and useful physical property as of July 1st, 1914, as a continuous process in the most efficient humanly practicable manner, under the hypothetical condition that the present property is non-existant except for purposes of inventory, and more specifically as follows:

Period of Construction.

It is assumed that the property is reproduced as a continuous process during a period of three years, terminating July 1st, 1914, and that the property in part is put to use and service started at the end of the second year.

Organization for Construction.

It is assumed that the Company is organized and incorporated prior to construction and the estimated costs of such organization for construction only (exclusive of all costs of promotion, financing and operation) are included.

Engineering.

It is assumed that engineers are employed to make preliminary surveys and reports, to prepare plans and specifications, and to superintend the construction.

159 ### Contractors.

It is assumed that the property, aside from principal power plant and substation apparatus, meters, services, commercial lamps and general equipment, is installed by contractors on percentage or cost-plus-fixed-sum basis, with certain major materials purchased directly by the Company and the balance by the contractor.

It is assumed that the principal apparatus of power plant and substation equipment is contracted for directly with the makers under the engineers' specifications, and that meters, services and commercial lamps are installed by the Company.

Contractor's profit is included in the unit costs of paving.

It is assumed that the items of general equipment are purchased directly by the Company.

Contractor's Percentage.

The term "contractor's percentage," as used, applies in part to contractor's profit and in part to certain undistributed costs necessarily incident to the construction, but which, as a matter of convenience in application, were not allocated to the individual unit prices.

Identical Property.

The theory was not that of comparative plant for equivalent service. The reproduction is intended to be that of a substantially identical property. No modifications or substitutions were considered except in the case of a few obsolete items of minor importance. (See Costs.)

160 The present property was considered as existent for purposes of inventory only. In reproduction, each item was considered as reproduced in identical location.

Topographical and Physical Conditions.

The construction is assumed to be carried on under physical and topographical conditions reasonably assumed to exist as of the date of the investigation, were the property itself (other than land) nonexistent except for the purpose of inventory.

On this basis, paving is included as noted in the following:

Paving.

In the performance of the judicial function of determination of "fair value" or "just amount," the exclusion of that portion of the paving (owned by the Government) not paid for by the Company should be taken into account. In the determination of the element of value, cost of reproduction, in its strict sense under present topographical conditions as above, all costs of removing and relaying existing pavements which would actually be incurred in such reproduction, must be included.

161 The cost to the Company of the pavement actually removed and relaid at its expense, has not as yet been determined and reported by your accounting department.

The total cost of reproduction as found and set forth in this report includes costs for pavements, as follows:

Removing pavement over underground conduits (excess over earth)	$40,072.00
Removing pavement over services (excess over earth)	5,004.00
Relaying pavement over underground conduits	377,843.00
Relaying pavement over services	69,703.00
	492,622.00
General costs (applying to paving only)	65,744.00
Total	558,366.00

Costs.

The costs as applied to the inventory are of three classifications, namely, unit costs, "contractor's percentages," and general costs. Unit costs are applied directly to the inventory items and in nearly all cases (and except where otherwise noted) include the labor costs to the contractor of the items in place. "Contractor's percentages" cover additional costs and profit of the contractor and are applied to items or groups of items, as the case may be, of property assumed to be installed by contractor. General costs refer to the necessary and proper general costs of the owner, constituting certain Interstate Commerce Commission accounts, and applied in the final total summaries only.

162 Costs are not necessarily values. The costs applied are intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of value, cost of reproduction, unstable, unsound and unsafe. In the case of certain commodities of fluctuating prices such as copper and iron, the market prices were averaged over a period of seven years and the trend of prices studied not to the end that the prices adopted might be representative of average past conditions, but that they might fairly represent prices as of the date of the investigation (July 1st, 1914), under normal conditions such as should have obtained had the causes of fluctuations been non-existant. Prices current July 1st, 1914, were taken as to all commodities of stable prices, or the prices of which, as in the case of lumber, are on a steady upward trend.

In the case of certain power plant machinery, now obsolete as to manufacture, the costs applied were determined on the basis of what the costs would have been under normal market price conditions (as of July 1st, 1914) with present shop methods and efficiency, were identical apparatus still being manufactured with patterns, standard parts, etc., still available.

163 ## Depreciation.

Depreciation of the physical items of property of this Company, a going concern, is held to mean the loss thru loss of service life, of capital assets represented by depreciable costs.

Accrued depreciation as set forth, does not indicate nor imply corresponding (nor any particular) physical deterioration, loss of efficiency, or loss of present serviceability, but does indicate corresponding loss to date of investigation, with respect to total serviceability, or potential service capability, thru expiration of proportional part of service life, i. e., thru *loss* of service life.

The annual depreciation amount calculated in conjunction with, and commensurate with, the accrued depreciation as set forth, represents the present annual loss (as of July 1st, 1914) of the capital assets represented by depreciable costs, thru loss of service life. It also

represents the corresponding amount for refund of capital to compensate therefor.

We have also independently calculated and hereinafter set forth the present annual amount of annuity, commensurate with and applying only to the cost of reproduction undepreciated, which, on a four per cent sinking fund basis, would provide for renewals, the capital in this case not being refunded but maintained.

164 The lives and depreciation herein considered and upon which the report is based, are those of individual property items, not of complete* plants or the property as a whole.

The methods of determining depreciation, and the meanings of the terms used in the report, may be briefly explained as follows:

Residual Value.

This refers to the value, as scrap or for other purposes, remaining in the property item after the service life of the item in its present use has expired.

Depreciable Cost.

"Depreciable cost" refers to cost of reproduction minus residual value, i. e., the portion subject to depreciation. (This is sometimes called "wearing value," but the term was not adopted for this report because costs are not necessarily values, and because the word "wearing" is misleading in connection with depreciation as herein considered and defined.)

165 (Land, though not depreciable thru loss of life, is included in depreciable costs in the same amounts as in reproduction costs, in order that the corresponding per cent remaining—which per cents apply to depreciable costs only—may be shown as 100, and so that weighted average per cents remaining may be directly derived from column totals.)

Age.

The age of the property item expressed in years to date of investigation, namely, to July 1, 1914.

Life.

Life means *service life* or useful life, and refers to the total period of time, expressed in years, during which the item is expected to usefully perform its service function. Life is determined by adding age and remaining life. Remaining life means *remaining expectancy of life*, or the remaining period of years during which

*Partial exception in case of emergency plant. (See sub-heading "Depreciation of Emergency Plant.")

the item is reasonably expected to usefully perform its service function, and at the end of which period it is expected to be discarded or put to other use, whatever value then remaining being residual value. Life was considered as terminated by either physical or functional cause, as the case might be, and was estimated after actual inspection of the property item, and consideration of all available facts relative to physical condition, maintenance,
166 specific mode and extent of use, the state of the art, etc.

Lives as determined with respect to various property items are shown on the detailed summaries herewith.

Physical Condition.

All physical property was inspected with reference to its physical condition, state of preservation, character of maintenance, etc., all as having bearing upon termination of life.

Per Cent Remaining.

This is the ratio of *remaining life* to *life* expressed as a percentage. (The term "condition per cent" is frequently used, but was not used in this report in order to avoid inference of physical condition.) The complement (or 100 per cent minus per cent remaining) is the ratio of age to life expressed as a percentage, and indicates the per cent of capital assets represented by depreciable cost lost to date thru loss of service life (corresponding to accrued depreciation).

Where age could be ascertained with reasonable certainty, remaining life and life were determined as above, and the per cent remaining directly derived. Where age could not be ascertained with reasonable certainty, the per cent remaining (of same meaning as above defined) was judged largely from physical inspection and such relevant data as was available.

167 The per cents remaining with respect to the various property items are shown in both the final and detail summaries herewith.

Annual Depreciation per Cent.

Annual depreciation per cent constitutes the per cent of capital assets represented by depreciable costs lost thru one year's loss of service life, as of the date of the investigation (July 1st, 1914). It is equal to 100 divided by the life in years, expressed as a percentage.

Annual Depreciation Amount.

This represents the present annual loss (as of July 1st, 1914) of the capital assets represented by depreciable costs, thru loss of service life. (It also represents the corresponding amount for refund of capital to compensate for such loss.) It equals the product of annual depreciation per cent and depreciable cost.

Accrued Depreciation.

See second paragraph under main heading Depreciation, page XXIII. The amounts are obtained by multiplying the complement of per cent remaining (100 per cent minus per cent remaining) by depreciable cost. It is equal to the annual depreciation amount times years of age.

168 Reproduction Cost Less Depreciation.

Reproduction cost less accrued depreciation to date (July 1st, 1914). The amounts are obtained by deducting accrued depreciation from reproduction cost.

Depreciation of Emergency Power Plant.

The 14th and B Street Power Plant of the Company was abandoned as a normal generating plant at the time the Benning Power Plant was put into service. The Company claim that this 14th and B Street plant is, and properly should be, held for emergency use, and it was considered that the plant might be reasonably retained as such until July 1st, 1922.

The plant equipment was depreciated thru two cycles, the first cycle being that of the individual plant items from dates of their original installation until the time when the plant ceased to operate as a normal generating plant, and became an emergency plant; the second cycle, that of the emergency plant as a whole from the time when it ceased to operate as a normal generating plant until the end of its expectancy of life as an emergency plant, namely, July 1st, 1922.

The depreciation of the first cycle was determined for each separate plant item in the same way as all other depreciation was determined, the expectancy of lives of the individual plant items being those reasonably expected in case the plant as a whole had
169 continued indefinitely as a normal operating plant. The total cost of reproduction less accrued depreciation was so determined for the plant items as of the date of termination of service as normal generating plant, and this amount was then taken as the base and depreciated as a unit thru the second cycle on the basis of age to date of investigation, July 1st, 1914, and life to July 1st, 1922.

Depreciation of General Costs.

The amounts and per cents of depreciation of the various general costs are shown in the final summary by Interstate Commerce Commission classifications, and in more detail in the detail summary of general costs, both in Volume I. Certain of the general costs are depreciated at the same rates as the base costs to which they apply.

On the other hand, engineering, organization, interest during construction, etc., apply in part to the property as a whole, the results lasting as long as the "going concern" lasts, and in part to individual property items, the results disappearing with such items and depreciating accordingly. On this basis, these general costs are depreciated at lesser rates than the base to which they apply, as indicated.

Annual Annuity on 4% Sinking Fund Basis.

The annual annuity on four per cent sinking fund basis to provide for renewals as referred to on page XXIII, and commensurate with and applying only to cost of reproduction undepreciated,
170 has been calculated independently for each inventory item separately depreciated, and in the same detail as accrued depreciation, and on the same basis as to life, only substituting four per cent sinking fund for "straight line" calculations.

Property Not Included.

As hereinbefore stated, this report is intended to include property located within the District of Columbia, used and useful for electric operations within the District. This report therefore excludes the following:

Account E-302—Franchises.
Account E-303—Patent Rights.
Account E-304—Other Intangible Electric Capital.
Account E-340—Land in Other Departments.
Account E-341—Franchises in Other Departments.
Account E-342—Patent Rights in Other Departments.
Account E-343—Other Intangible Capital in Other Departments.
Account E-344—Tangible Capital in Other Departments.
Cost of promoting and financing *only* of Account E-301—Organization.
All property located without the District limits.
Certain property of Transmission and Distribution Systems, namely, transmission lines and feeders, or portions thereof, within the District, but leading without and conveying no electric energy for use within the District.
Land comprising Parcel 151/21 (formerly Graceland Cemetery).
The Company claimed ownership of this (although the Dis-
171 trict records do not contain information to establish such ownership). This parcel was appraised at $160,490.00, but was excluded from the costs of reproduction set forth in this report for the reason that, in our opinion, this parcel more properly belongs to Interstate Commerce Commission Account E-340—Land in Other Departments, i. e., land not devoted to electric operations. This matter should be further investigated after the Company's claims as to future use are made known.

Certain other parcels of land which were included may more properly belong in Account E-340, but were included for lack of information as to the Company's claims or intentions as to future use.

This report excludes all consideration of intangible property, as, under your instruction, the engineering department has had to do with physical property only.

Materials and Supplies.

Materials and supplies on hand (in store rooms) were not inventoried. The amount set forth for this item is as determined from the Company's books and records as of July 1st, 1914, by your accounting department.

Working Capital.

The working capital as included consists of one-eighth of the annual operating expenses and real property taxes (as of July 1st, 1914), plus an additional amount for property extensions.

Conclusions.

The report shows the following conclusions based upon the foregoing explanations and definitions:

Inventory division of physical property.	"A." Reproduction cost.	"B." Reproduction cost less accrued depreciation.	Ratio of "B" to "A."
A. Land	$433,792.00	$433,792.00	100.00
C. Structures	740,989.00	544,830.55	73.53
D. Power Plant and Substation Equipment	2,497,334.89	1,769,478.40	70.85
E. Transmission and Distribution Systems	4,448,662.27	3,727,853.18	83.80
G. General Equipment	87,919.84	63,352.66	72.06
H. General Costs	1,492,497.00	1,324,143.05	88.72
Total	9,701,195.00	7,863,449.84	81.06
Materials & Supplies	128,893.08	128,893.08	100.00
Working Capital	135,000.00	135,000.00	100.00
Total	$9,965,088.08	$8,127,342.92	81.56

Annual Depreciation Corresponding to and commensurate with Cost of Reproduction Less Accrued Depreciation $251,637.76

Equals Rate on Total Cost of Reproduction (9,965,088.08) of 2.53%

Equals Rate on Cost of Reproduction of C to H inclusive (9,267,403.00) of 2.72%

Account No.	Classification.	Inven div
E-300	Land Devoted to Electric Operations	A
E-301	Organization	F
E-302	Franchises	
E-303	Patent Rights	
E-304	Other Intangible Electric Capital	
E-305	General Structures	C
E-306	General Equipment	C
E-307	Dams, Canals and Pipe Lines	
E-308	Power Plant Buildings	C
E-309	Furnaces, Boilers and Accessories	I
E-310	Steam Prime Movers	I
E-311	Turbines and Water Wheels	
E-312	Gas Producers and Accessories	
E-313	Gas Engines	
E-314	Electric Generators	I
E-315	Accessory Electric Power Equipment	I
E-316	Miscellaneous Power Plant Equipment	I
E-317	Substation Buildings	C
E-318	Substation Equipment	I
E-319	Poles and Fixtures	E
E-320	Underground Conduits	E
E-321	Transmission System	E
E-322	Distribution System	E
E-323	Line Transformers and Devices	E
E-324	Electric Services	E
E-325	Electric Meters	E
E-326	Electric Meter Installation	E
E-327	Street and Park Lighting System	E
E-328	Commercial Arc Lamps	E
E-329	Glower Lamps	E
E-330	Electric Motors and Heaters	
E-331	Electric Tools and Implements	G
E-332	Electric Laboratory Equipment	G

* Not included in Engineering Report.

** Cost of Promoting and Financing not included in Engineerin
x No item.

FINAL SUMMARY

BY

INTERSTATE COMMERCE COMMISSION CLASSIFICATIONS.

Potomac Electric Power Co.

Final Summary by Interstate Commerce Commission Classifications.

	Inventory division.	Reproduction cost. "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."
.....	A	433,792.00	0	443,792.00	100.00	0	0	0	433,792.00
.....	H	**	.....	.....	.....	.....	.....	.....	**
.....		*	.....	.....	.....	.....	.....	.....	*
.....		*	.....	.....	.....	.....	.....	.....	*
.....		*	.....	.....	.....	.....	.....	.....	*
.....	C	96,135.00	0	96,135.00	67.98	3.05	2,927.36	30,780.45	65,354.55
.....	G	72,131.52	8,551.93	63,579.59	67.03	12.90	8,202.22	20,960.05	51,171.47
.....		x	.....	.....	.....	.....	.....	.....	x
.....	C	524,529.00	0	524,529.00	72.95	1.78	9,326.33	141,896.76	382,632.24
.....	D	609,019.46	23,544.07	585,475.39	62.22	3.90	22,859.16	221,195.48	387,823.98
.....	D	555,041.00	51,375.27	503,665.73	63.72	5.19	26,145.41	182,735.98	372,305.02
.....		x	.....	.....	.....	.....	.....	.....	x
.....		x	.....	.....	.....	.....	.....	.....	x
.....		x	.....	.....	.....	.....	.....	.....	x
.....	D	254,814.68	29,309.63	225,505.05	58.45	4.95	11,157.14	93,703.04	161,111.64
.....	D	85,396.98	5,971.08	79,425.90	79.62	4.41	3,501.07	16,184.20	69,212.78
.....	D	25,883.90	1,351.38	24,532.52	64.46	3.49	856.40	8,719.12	17,164.78
.....	C	120,325.00	0	120,325.00	80.49	1.64	1,969.26	23,481.24	96,843.76
.....	D	967,178.87	85,347.30	881,831.57	76.72	4.62	40,727.92	205,318.67	761,860.20
.....	E	85,408.52	25.00	85,383.52	71.73	6.70	5,721.78	24,134.10	61,274.42
.....	E	1,513,237.34	3,634.02	1,509,603.32	90.25	1.07	16,184.17	147,128.82	1,366,108.52
.....	E	374,954.79	142,730.32	232,224.47	73.27	3.39	7,883.87	62,068.55	312,886.24
.....	E	1,292,439.28	460,439.60	631,999.68	73.03	3.42	28,468.73	224,371.99	1,068,067.29
.....	E	124,267.37	13,361.10	110,886.27	75.00	5.00	5,544.31	27,721.57	96,545.80
.....	E	440,308.01	45,577.72	394,730.29	81.44	2.42	9,537.15	73,257.17	367,050.84
.....	E	292,037.71	1,813.70	290,224.01	80.00	5.00	14,511.20	58,044.80	233,992.91
.....	E	20,746.44	0	20,746.44	80.00	5.00	1,037.32	4,149.29	16,597.15
.....	E	292,586.40	28,600.81	263,985.59	63.68	3.40	8,977.53	95,874.98	196,711.42
.....	E	7,548.57	688.50	6,860.07	60.00	5.00	343.00	2,744.03	4,804.54
.....	E	1,805.88	0	1,805.88	60.00	5.00	90.29	722.35	1,083.53
.....		x	.....	.....	.....	.....	.....	.....	x
.....	G	6,194.39	0	6,194.39	65.00	33.33	2,064.59	2,168.04	4,026.35
.....	G	9,593.93	0	9,593.93	85.00	5.00	479.70	1,439.09	8,154.84

1 In Engineering Report; remainder in Account No. E-338.

Potomac Electric Power Co.

Final Summary by Interstate Commerce Commission Classifications (Continued).

Reproduction

FINAL SUMMARY

BY

INTERSTATE COMMERCE COMMISSION CLASSIFICATIONS.

Potomac Electric Power Co.

Final Summary by Interstate Commerce Commission Classifications.

Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
433,792.00	0	443,792.00	100.00	0	0	0	433,792.00	100.00
**	.....	.....	.....	.....	.....	.....	**	.....
*	.....	.....	.....	.....	.....	.....	*	.....
*	.....	.....	.....	.....	.....	.....	*	.....
*	.....	.....	.....	.....	.....	.....	*	.....
96,135.00	0	96,135.00	67.98	3.05	2,927.36	30,780.45	65,354.55	67.98
72,131.52	8,551.93	63,579.59	67.03	12.90	8,202.22	20,960.05	51,171.47	70.94
x	.....	.....	.....	.....	.....	.....	x	.....
524,529.00	0	524,529.00	72.95	1.78	9,326.33	141,896.76	382,632.24	72.95
609,019.46	23,544.07	585,475.39	62.22	3.90	22,859.16	221,195.48	387,823.98	63.68
555,041.00	51,375.27	503,665.73	63.72	5.19	26,145.41	182,735.98	372,305.02	67.08
x	.....	.....	.....	.....	.....	.....	x	.....
x	.....	.....	.....	.....	.....	.....	x	.....
x	.....	.....	.....	.....	.....	.....	x	.....
254,814.68	29,309.63	225,505.05	58.45	4.95	11,157.14	93,703.04	161,111.64	63.23
85,396.98	5,971.08	79,425.90	79.62	4.41	3,501.07	16,184.20	69,212.78	81.05
25,883.90	1,351.38	24,532.52	64.46	3.49	856.40	8,719.12	17,164.78	66.31
120,325.00	0	120,325.00	80.49	1.64	1,969.26	23,481.24	96,843.76	80.49
967,178.87	85,347.30	881,831.57	76.72	4.62	40,727.92	205,318.67	761,860.20	78.77
85,408.52	25.00	85,383.52	71.73	6.70	5,721.78	24,134.10	61,274.42	71.74
1,513,237.34	3,634.02	1,509,603.32	90.25	1.07	16,184.17	147,128.82	1,366,108.52	90.28
374,954.79	142,730.32	232,224.47	73.27	3.39	7,883.87	62,068.55	312,886.24	83.45
1,292,439.28	460,439.60	631,999.68	73.03	3.42	28,468.73	224,371.99	1,068,067.29	82.64
124,267.37	13,361.10	110,886.27	75.00	5.00	5,544.31	27,721.57	96,545.80	77.69
440,308.01	45,577.72	394,730.29	81.44	2.42	9,537.15	73,257.17	367,050.84	83.36
292,037.71	1,813.70	290,224.01	80.00	5.00	14,511.20	58,044.80	233,992.91	80.12
20,746.44	0	20,746.44	80.00	5.00	1,037.32	4,149.29	16,597.15	80.00
292,586.40	28,600.81	263,985.59	63.68	3.40	8,977.53	95,874.98	196,711.42	67.23
7,548.57	688.50	6,860.07	60.00	5.00	343.00	2,744.03	4,804.54	63.65
1,805.88	0	1,805.88	60.00	5.00	90.29	722.35	1,083.53	60.00
x	.....	.....	.....	.....	.....	.....	x	.....
6,194.39	0	6,194.39	65.00	33.33	2,064.59	2,168.04	4,026.35	65.00
9,593.93	0	9,593.93	85.00	5.00	479.70	1,439.09	8,154.84	85.00

Report; remainder in Account No. E-338.

Potomac Electric Power Co.

Summary by Interstate Commerce Commission Classifications (Continued).

Account No.	Classification.	division.	"A."	value.	cost.	remaining.	per cent.	amount.			
E-333	Other Tangible Electric Capital	E	3,321.96	956.22	2,365.74	75.00	6.67	157.79	591.44	2,730.52	82.20
E-334	Engineering and Superintendence	H	350,246.00	0	350,246.00	84.77	2.09	7,308.46	53,354.06	296,891.94	84.77
E-335	Law Expenditures During Construction (Included in Account No. E-338)	H	.....	.....	.....	.....	.....	.....	.....	.....	.....
E-336	Injuries During Construction (Included in base costs)	..	.....	.....	.....	.....	.....	.....	.....	.....	.....
E-337	Taxes During Construction	H	23,940.00	0	23,940.00	94.43	0.40	96.56	1,332.66	22,607.34	94.43
E-338	Miscellaneous Construction Expenditures	H	483,654.00	0	483,654.00	86.09	1.90	9,212.47	67,252.72	416,401.28	86.09
E-339	Interest During Construction	H	634,657.00	0	634,657.00	92.69	1.00	6,346.57	46,414.51	588,242.49	92.69
E-340	Land in Other Departments	..	*	.....	.....	.....	.....	.....	.....	*	.....
E-341	Franchises in Other Departments	..	*	.....	.....	.....	.....	.....	.....	*	.....
E-342	Patent Rights in Other Departments	..	*	.....	.....	.....	.....	.....	.....	*	.....
E-343	Other Intangible Capital in Other Departments	..	*	.....	.....	.....	.....	.....	.....	*	.....
E-344	Tangible Capital in Other Departments	..	*	.....	.....	.....	.....	.....	.....	*	.....
	Total	..	9,701,195.00	903,297.65	8,797,897.35	79.11	2.86	251,637.76	1,837,745.16	7,863,449.84	81.06
	Materials and Supplies	..	128,893.08	0	128,893.08	100.00	0	0	0	128,893.08	100.00
	Working Capital	..	135,000.00	0	135,000.00	100.00	0	0	0	135,000.00	100.00
	Total Physical Property Used and Useful in Electric Operations (Within the District of Columbia Only)**	..	9,965,088.08	903,297.65	9,061,790.43	79.72	2.78***	251,637.76	1,837,745.16	8,127,342.92	81.56

* Not included in Engineering Report.

** Items of Transmission System (Account No. E-321) within the District of Columbia, but used wholly in connection with energy transmitted without the District of Columbia, not included.

*** This per cent applies to depreciable cost (including land). Per cent of Total Cost of Reproduction as above, equals 2.53%.

FINAL SUMMARY BY INVENTORY DIVISIONS.

Potomac Electric Power Co.

Final Summary by Inventory Divisions.

Item.	Reproduction cost, "A."	Residual value.	Depreciable cost.	Per re
A. Land	433,792.00	0	433,792.00	10
Account No. E-300.				
C. Structures (Buildings)	740,989.00	0	740,989.00	7
Accounts No. E-305, E-308, E-317.				
D. Power Plant and Substation Equipment	2,497,334.89	196,898.73	2,300,436.16	6
Accounts No. E-309, E-310, E-314, E-315, E-316, and E-318.				
E. Transmission and Distribution Systems	4,448,662.27	697,846.99	3,750,815.28	8
Accounts No. E-319, E-320, E-321, E-322, E-323, E-324, E-325, E-326, E-327, E-328, E-329, and E-333.				
G. General Equipment	87,919.84	8,551.93	79,367.91	6
General office, shop, store, stable and garage equipment, tools and implements, and laboratory equipment.				
Accounts No. E-306, E-331, and E-332.				
Total Base Costs	8,208,698.00	903,297.65	7,305,400.35	7
H. General Costs	1,492,497.00	0	1,492,497.00	8
Legal and Organization Expense, Omissions and Contingencies, Engineering and Superintendence, Insurance, Taxes and Interest during Construction.				
Accounts No. E-301, E-334, E-335, E-337, E-338, and E-339.				
Total	9,701,195.00	903,297.65	8,797,897.35	7
Materials and Supplies	128,893.08	0	128,893.08	10
Working Capital	135,000.00	0	135,000.00	10
Total physical property used and useful in electric operations within the District of Columbia only*	9,965,088.08	903,297.65	9,061,790.43	7

*Items of Transmission System (Account No. E-321) within the District of Columbia, but used wholly in connection with energy transmi

***This per cent applies to depreciable cost (including land). Per Cent of Total Cost of Reproduction as above, equals 2.53%.

FINAL SUMMARY BY INVENTORY DIVISIONS.

Potomac Electric Power Co.

Final Summary by Inventory Divisions.

	Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
.....	433,792.00	0	433,792.00	100.00	0	0	0	433,792.00	100.00
.....	740,989.00	0	740,989.00	73.53	1.92	14,222.95	196,158.45	544,830.55	73.53
.....	2,497,334.89	196,898.73	2,300,436.16	68.36	4.58	105,247.10	727,856.49	1,769,478.40	70.85
.....	4,448,662.27	697,846.99	3,750,815.28	80.78	2.62	98,457.14	720,809.09	3,727,853.18	83.80
.....	87,919.84	8,551.93	79,367.91	69.05	13.54	10,746.51	24,567.18	63,352.66	72.06
.....	8,208,698.00	903,297.65	7,305,400.35	77.15	3.13	228,673.70	1,669,391.21	6,539,306.79	79.66
.....	1,492,497.00	0	1,492,497.00	88.72	1.54	22,964.06	168,353.95	1,324,143.05	88.72
.....	9,701,195.00	903,297.65	8,797,897.35	79.11	2.86	251,637.76	1,837,745.16	7,863,449.84	81.06
.....	128,893.08	0	128,893.08	100.00	0	0	0	128,893.08	100.00
.....	135,000.00	0	135,000.00	100.00	0	0	0	135,000.00	100.00
.....	9,965,088.08	903,297.65	9,061,790.43	79.72	2.78***	251,637.76	1,837,745.16	8,127,342.92	81.56

of Columbia, but used wholly in connection with energy transmitted without the District of Columbia, not included.
of Total Cost of Reproduction as above, equals 2.53%.

180

Land.

	Reproduction cost.
Account No. E-300—Land Devoted to Electric Operations	433,792.00
Total Land	433,792.00

181

Potomac Electric Power Co.

Structures.

Item.	Reproduction cost, "A."	Residual value.	Depreciable cost.
Account No. E-305—General Structures	96,135.00	0	96,135.00
Account No. E-308—Power Plant Buildings	524,529.00	0	524,529.00
Account No. E-317—Substation Buildings	120,325.00	0	120,325.00
Total Structures	740,989.00	0	740,989.00

182

Potomac Electric Power Co.

Power Plant and Substation Equipment.

Item.	Reproduction cost, "A."	Residual value.	Depreciable cost.
Account No. E-309—Boilers, Furnaces and Accessories:			
Benning Power Plant	413,982.46	16,264.07	397,718.39
Emergency Power Plant	195,037.00	7,280.00	187,757.00
Total	609,019.46	23,544.07	585,475.39
Account No. E-310—Steam Prime Movers:			
Benning Power Plant	471,188.00	47,112.27	424,075.73
Emergency Power Plant	83,853.00	4,263.00	79,590.00
Total	555,041.00	51,375.27	503,665.73
Account No. E-314—Electric Generators:			
Benning Power Plant	178,369.68	17,845.63	160,524.05
Emergency Power Plant	76,445.00	11,464.00	64,981.00
Total	254,814.68	29,309.63	225,505.05
Account No. E-315—Accessory Electric Power Equipment:			
Benning Power Plant	76,551.98	4,739.08	71,812.90
Emergency Power Plant	8,845.00	1,232.00	7,613.00

Each Inventory Division by Interstate Commerce Commission Classifications.

Land.

Reproduction cost.
433,792.00
433,792.00

Potomac Electric Power Co.

Structures.

Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
96,135.00	0	96,135.00	67.98	3.05	2,927.36	30,780.45	65,354.55	67.98
524,529.00	0	524,529.00	72.95	1.78	9,326.33	141,896.76	382,632.24	72.95
120,325.00	0	120,325.00	80.49	1.64	1,969.26	23,481.24	96,843.76	80.49
740,989.00	0	740,989.00	73.53	1.92	14,222.95	196,158.45	544,830.55	73.53

Potomac Electric Power Co.

Power Plant and Substation Equipment.

Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
413,982.46	16,264.07	397,718.39	74.60	3.62	14,410.16	101,039.48	312,942.98	75.59
195,037.00	7,280.00	187,757.00	36.00	4.50	8,449.00	120,156.00	74,881.00	38.39
609,019.46	23,544.07	585,475.39	62.22	3.90	22,859.16	221,195.48	387,823.98	63.68
471,188.00	47,112.27	424,075.73	69.93	5.45	23,097.41	127,537.98	343,650.02	72.93
83,853.00	4,263.00	79,590.00	30.65	3.83	3,048.00	55,198.00	28,655.00	34.17
555,041.00	51,375.27	503,665.73	63.72	5.19	26,145.41	182,735.98	372,305.02	67.08
178,369.68	17,845.63	160,524.05	70.04	5.44	8,733.14	48,095.04	130,274.64	73.04
76,445.00	11,464.00	64,981.00	29.81	3.73	2,424.00	45,608.00	30,837.00	40.34
254,814.68	29,309.63	225,505.05	58.45	4.95	11,157.14	93,703.04	161,111.64	63.23
76,551.98	4,739.08	71,812.90	85.10	4.50	3,235.07	10,702.20	65,849.78	86.02
8,845.00	1,232.00	7,613.00	27.99	3.50	266.00	5,482.00	3,363.00	38.02

Account No. E-316—Miscellaneous Power Plant Equipment:									
Benning Power Plant	20,415.90	624.38	19,791.52	74.37	3.63	719.40	5,072.12	15,343.78	75.16
Emergency Power Plant	5,468.00	727.00	4,741.00	23.08	2.89	137.00	3,647.00	1,821.00	33.30
Total	25,883.90	1,351.38	24,532.52	64.46	3.49	856.40	8,719.12	17,164.78	66.31
Account No. E-318—Substation Equipment:									
Substation No. 1	86,137.78	8,291.67	77,846.11	71.19	5.64	4,394.25	22,426.48	63,711.30	73.96
Substation No. 2	208,324.89	19,483.46	188,841.43	82.56	5.09	9,607.39	32,941.54	175,383.35	84.19
Substation No. 3	24,444.57	2,072.63	22,371.94	73.97	4.09	914.45	5,824.05	18,620.52	76.17
Substation No. 5	27,143.06	2,260.77	24,882.29	82.91	4.08	1,015.59	4,252.75	22,890.31	84.33
Substation No. 10	155,357.84	14,723.30	140,634.54	76.18	4.97	6,987.18	33,496.94	121,860.90	78.44
Substation No. 11	27,165.25	2,391.79	24,773.46	67.46	4.06	1,004.81	8,061.08	19,104.17	70.33
Substation No. 12	93,495.92	7,612.24	85,883.68	69.48	4.07	3,495.09	26,210.70	67,285.22	71.97
Substation No. 13	51,164.44	4,076.91	47,087.53	71.37	4.07	1,917.93	13,480.93	37,683.51	73.65
Substation No. 14	28,844.62	2,821.56	26,023.06	72.92	4.00	1,040.91	7,045.88	21,798.74	75.57
Substation No. 16	139,482.38	10,389.96	129,092.42	81.49	4.10	5,297.19	23,894.83	115,587.55	82.87

Power Plant and Substation Equipment (Continued).

Item.	Reproduction cost, "A."	Residual value.	Depreciable cost.
Account No. E-318—Substation Equipment (Cont'd).			
Tennallytown Substation	3,658.24	155.45	3,502.79
Anacostia Substation	3,361.68	324.66	3,037.02
Washington Steel & Ordnance Co. substation	13,297.96	1,372.27	11,925.69
Fidelity Storage Co. Substation	4,594.36	440.87	4,153.49
American Express Co. Substation	3,364.05	323.33	3,040.72
Bureau of Engraving & Printing Substation	14,700.68	1,281.70	13,418.98
Corby Company Substation	18,540.07	1,526.00	17,014.07
Street and Park Lighting Equipment:			
Substation No. 2	8,211.08	503.83	7,707.25
Substation No. 3	567.34	42.02	525.32
Substation No. 5	1,264.65	98.32	1,166.33
Substation No. 10	4,695.61	334.90	4,360.71
Substation No. 11	1,794.39	145.20	1,649.19
Substation No. 13	704.67	54.79	649.88
Substation No. 16	43,296.29	4,382.11	38,914.18
Tennallytown Substation	1,537.74	113.37	1,424.37
Anacostia Substation	1,072.88	68.80	1,004.08
Benning Power Plant	956.43	55.39	901.04
Total	967,178.87	85,347.30	881,831.57
Total Power Plant and Substation Equipment Exclusive of Emergency Power Plant	2,127,686.89	171,932.73	1,955,754.16
Total Power Plant and Substation Equipment Including Emergency Power Plant	2,497,334.89	196,898.73	2,300,436.16

Potomac Electric Power Co.

Power Plant and Substation Equipment (Continued).

	Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
...	3,658.24	155.45	3,502.79	84.43	4.51	157.88	545.41	3,112.83	85.09
...	3,361.68	324.66	3,037.02	87.75	4.08	124.05	372.14	2,989.54	88.93
...	13,297.96	1,372.27	11,925.69	100.00	4.09	488.10	0	13,297.96	100.00
...	4,594.36	440.87	4,153.49	92.86	4.14	172.06	296.53	4,297.83	93.55
...	3,364.05	323.33	3,040.72	96.00	4.00	121.63	121.63	3,242.42	96.38
...	14,700.68	1,281.70	13,418.98	63.04	4.00	536.77	4,959.78	9,740.90	66.26
...	18,540.07	1,526.00	17,014.07	100.00	4.00	680.56	0	18,540.07	100.00
...	8,211.08	503.83	7,707.25	82.88	5.00	385.37	1,319.55	6,891.53	83.93
...	567.34	42.02	525.32	84.06	5.00	26.27	83.76	483.58	85.24
...	1,264.65	98.32	1,166.33	85.00	5.00	58.32	174.95	1,089.70	86.17
...	4,695.61	334.90	4,360.71	86.67	5.00	218.03	581.29	4,114.32	87.62
...	1,794.39	145.20	1,649.19	72.94	5.00	82.45	446.19	1,348.20	75.13
...	704.67	54.79	649.88	100.00	5.00	32.49	0	704.67	100.00
...	43,296.29	4,382.11	38,914.18	53.08	4.63	1,802.69	18,260.40	25,035.89	57.82
...	1,537.74	113.37	1,424.37	81.94	5.00	71.22	257.23	1,280.51	83.27
...	1,072.88	68.80	1,004.08	85.00	5.00	50.20	150.61	922.27	85.96
...	956.43	55.39	901.04	87.35	5.00	45.04	114.02	842.41	88.08
...	967,178.87	85,347.30	881,831.57	76.72	4.62	40,727.92	205,318.67	761,860.20	78.77
...	2,127,686.89	171,932.73	1,955,754.16	74.55	4.65	90,923.10	497,765.49	1,629,921.40	76.61
...	2,497,334.89	196,898.73	2,300,436.16	68.36	4.58	105,247.10	727,856.49	1,769,478.40	70.85

Item.	Reproduction cost. "A."	Residual value.	Depreciable cost.
Account No. E-319—Poles and Fixtures	85,408.52	25.00	85,383.52
Account No. E-320—Underground Conduits:			
Conduits and Manholes	1,093,864.63	3,634.02	1,090,230.61
Paving:			
Removal of paving (Excess over earth)	41,529.58	0	41,529.58
Relaying of paving	377,843.13	0	377,843.13
Total paving	419,372.71	0	419,372.71
Total Account No. E-320—Underground Conduits	1,513,237.34	3,634.02	1,509,603.32
Account No. E-321—Transmission System	374,954.79	142,730.32	232,224.47
Account No. E-322—Distribution System	1,292,439.28	460,439.60	831,999.68
Account No. E-323—Line Transformers and Devices	124,267.37	13,381.10	110,886.27
Account No. E-324—Electric Services:			
Services only	365,362.83	45,577.72	319,785.11
Paving:			
Removal of paving	5,242.28	0	5,242.28
Relaying of paving	69,702.90	0	69,702.90
Total paving	74,945.18	0	74,945.18
Total Account No. E-324—Electric Services	440,308.01	45,577.72	394,730.29
Account No. E-325—Electric Meters	292,037.71	1,813.70	290,224.01
Account No. E-326—Electric Meter Installation	20,746.44	0	20,746.44
Account No. E-327—Street and Park Lighting	292,586.40	28,600.81	263,985.59
Account No. E-328—Commercial Arc Lamps	7,548.57	688.50	6,860.07
Account No. E-329—Glower Lamps	1,805.88	0	1,805.88
Account No. E-333—Other Tangible Electric Capital	3,321.96	956.22	2,365.74
Total Transmission and Distribution	4,448,662.27	697,846.99	3,750,815.28

Potomac Electric Power Co.

Transmission and Distribution.

	Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
. .	85,408.52	25.00	85,383.52	71.73	6.70	5,721.78	24,134.10	61,274.42	71.74
. .	1,093,864.63	3,634.02	1,090,230.61	87.00	1.43	15,590.30	141,729.97	952,134.66	87.04
. .	41,529.58	0	41,529.58	87.00	1.43	593.87	5,398.85	36,130.73	.....
. .	377,843.13	0	377,843.13	100.00	0	0	0	377,843.13	.....
. .	419,372.71	0	419,372.71	98.71	0.14	593.87	5,398.85	413,973.86	98.71
. .	1,513,237.34	3,634.02	1,509,603.32	90.25	1.07	16,184.17	147,128.82	1,366,108.52	90.28
. .	374,954.79	142,730.32	232,224.47	73.27	3.39	7,683.87	62,068.55	312,886.24	83.45
. .	1,292,439.28	460,439.60	831,999.68	73.03	3.42	28,468.73	224,371.99	1,068,067.29	82.64
. .	124,267.37	13,381.10	110,886.27	75.00	5.00	5,544.31	27,721.57	96,545.80	77.69
. .	365,362.83	45,577.72	319,785.11	77.35	2.95	9,432.30	72,418.41	292,944.42	80.18
. .	5,242.28	0	5,242.28	84.00	2.00	104.85	838.76	4,403.52	.....
. .	69,702.90	0	69,702.90	100.00	0	0	0	69,702.90	.....
. .	74,945.18	0	74,945.18	98.88	0.14	104.85	838.76	74,106.42	98.88
. .	440,308.01	45,577.72	394,730.29	81.44	2.42	9,537.15	73,257.17	367,050.84	83.36
. .	292,037.71	1,813.70	290,224.01	80.00	5.00	14,511.20	58,044.80	233,992.91	80.12
. .	20,746.44	0	20,746.44	80.00	5.00	1,037.32	4,149.29	16,597.15	80.00
. .	292,586.40	28,600.81	263,985.59	63.68	3.40	8,977.53	95,874.98	196,711.42	67.23
. .	7,548.57	688.50	6,860.07	60.00	5.00	343.00	2,744.03	4,804.54	63.65
. .	1,805.88	0	1,805.88	60.00	5.00	90.29	722.35	1,083.53	60.00
. .	3,321.96	956.22	2,365.74	75.00	6.67	157.79	591.44	2,730.52	82.20
. .	4,448,662.27	697,846.99	3,750,815.28	80.78	2.62	98,457.14	720,809.09	3,727,853.18	83.80

185

Potomac Electric Power Co.

General Equipment.

	Reproduction cost, "A."	Residual value.	Depreciable cost.	Pe ren
Account No. E-306—General Equipment	72,131.52	8,551.93	63,579.59	6
Account No. E-331—Electric Tools and Implements	6,194.39	0	6,194.39	6
Account No. E-332—Electric Laboratory Equipment	9,593.93	0	9,593.93	8
Total General Equipment	87,919.84	8,551.93	79,367.91	6

186

Potomac Electric Power Co.

General Costs.

Item.	Reproduction cost, "A."	Residual value.	Depreciable cost.	Pe ren
Account No. E-301—Organization	**	.....	.....	..
Account No. E-334—Engineering and Superintendence	350,246.00	0	350,246.00	8
Account No. E-335—Law Expenditures During Construction (Included in Account No. E-338.)	.....	.....	.....	..
Account No. E-337—Taxes During Construction	23,940.00	0	23,940.00	9
Account No. E-338—Miscellaneous Construction Expenditures	483,654.00	0	483,654.00	8
Account No. E-339—Interest During Construction	634,657.00	0	634,657.00	9
Total General Costs	1,492,497.00	0	1,492,497.00	8

** Cost of Promoting and Financing not included in Engineering report; remainder in Account No. E-338.

Potomac Electric Power Co.

General Equipment.

Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
72,131.52	8,551.93	63,579.59	67.03	12.90	8,202.22	20,960.05	51,171.47	70.94
6,194.39	0	6,194.39	65.00	33.33	2,064.59	2,168.04	4,026.35	65.00
9,593.93	0	9,593.93	85.00	5.00	479.70	1,439.09	8,154.84	85.00
87,919.84	8,551.93	79,367.91	69.05	13.54	10,746.51	24,567.18	63,352.66	72.06

Potomac Electric Power Co.

General Costs.

Reproduction cost, "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, "B."	Ratio of "B" to "A."
**	.....	.....	.....	.....	.....	.....	**	.....
350,246.00	0	350,246.00	84.77	2.09	7,308.46	53,354.06	296,891.94	84.77
.....	.....	.....	.....	.....	.....	.....	.....	.....
23,940.00	0	23,940.00	94.43	0.40	96.56	1,332.66	22,607.34	94.43
483,654.00	0	483,654.00	86.09	1.90	9,212.47	67,252.72	416,401.28	86.09
634,657.00	0	634,657.00	92.69	1.00	6,346.57	46,414.51	588,242.49	92.69
1,492,497.00	0	1,492,497.00	88.72	1.54	22,964.06	168,353.95	1,324,143.05	88.72

ainder in Account No. E-338.

Annual Annuity to Depreciation Reserve (For renewals) on 4% Sinking Fund Basis Apply to Cost of Reproduction Undepreciated	$159,441.41
Equals Rate on Total Cost of Reproduction (9,965,088.08) of	1.60%
Equals Rate on Cost of Reproduction of C to H inclusive (9,267,403.00) of	1.72%

All as of July 1st, 1914.
Final and detailed summaries follow.
Respectfully submitted,

CHAS. L. PILLSBURY,
Chief Engineer.

Washington, D. C.,
December First, 1915.

Final Summaries.

Index.

	Page.
Final Summary by Interstate Commerce Commission Classifications	1
Final Summary by Inventory Divisions	3
Final Inventory Division Summaries by Interstate Commerce Commission Classifications:	
Land	4
Structures	5
Power Plant and Substation Equipment	6
Transmission and Distribution	8
General Equipment	9
General Costs	10

(Here follow tables marked pages 174-186, inclusive.)

Witness states to the best of his information and belief is correct, and was thereupon offered in evidence; that he was engaged in this work since May 1, 1914, although but little was done during the month of May. The report on the Potomac Company was completed on December 1, 1915; that the first step was the creation of an organization for the purpose of making a detailed inventory of the physical properties of the company, of accumulating cost data with respect thereto, compiling it and which the witness
187 states to the best of his information and belief is correct, and was thereupon offered in evidence; that he was engaged in this work since May 1, 1914, although but little was done during the month of May. The report on the Potomac Company was completed on December 1, 1915; that the first step was the creation of an organization for the purpose of making a detailed inventory of the physical properties of the company, of accumulating cost data with respect thereto, compiling it and arranging it, and
188 for the purpose of applying the cost to the inventory, and so establishing a cost of reproduction valuation of physical property. The general nature of the organization and personnel of the staff is as shown in "Basis and Conclusions."

The general survey was first made of the entire properties by himself personally and with several of the department heads. At the same time a preliminary investigation was made of the company and such other data of the company as at that time was available for study and which they could find for the purpose. In this way he arrived at a general idea of the magnitude of the undertaking and what would be necessary in the way of dividing the property as a whole into units, so as to facilitate the inventorying without liability of undue omissions and duplication.

Instructions were prepared by himself, partially in writing, and partially verbally outlining how the inventory should proceed.

Each building, power station and substation was considered a unit and inventoried independently. As to all parts of the physical properties, he adopted the classification of the Interstate Commerce Commission as set out in the uniform system of accounts as prescribed by the Interstate Commerce Commission for electric corporations in the District of Columbia under date of 1909, with one or two changes indicated in the report.

They took a map prepared by the highway commission for the District of Columbia and divided it arbitrarily into 222 sections, each traced on a sheet of paper directly from the map. He had prepared special forms to accompany each of these sections and these special forms constituted the guides for the inventory staffs upon which they should enter, under the headings provided for the purpose, the data wished in respect to the property in that division.

Field parties were sent into the field, each party under a man in charge, for the purpose of inventorying the respective
189 sections, one section at a time by a party at a time. This was checked at the office and compared with information there available from other sources and a considerable portion of it

was rechecked by a second party without knowledge on the part of the second party of what had been done by the first party.

Certain of the main features, such as manholes, the underground distribution system, for instance, were drawn in pencil on the field on these letter head size section maps. They were afterwards traced on similar section maps, which now constitute a part of this record. Each hole was numbered. A conduit was listed for instance as being between manhole No. 33 and manhole No. 34 of section so-and-so. The overhead wires were likewise indicated on the inventory sheets as existing between pole No. 10 and pole No. 11 of section so-and-so, all of which appears in the transcript, page 278.

That he advised himself of the detail and result of the work of these several departments as it progressed during these 18 or 20 months as closely as he possibly could considering the magnitude of the work, in view of the fact that he was not personally on the ground all the time and also that several utilities were being valued at the same time. However, he was in almost constant touch, while here, with all departments; that is, practically every day with *the* each department and he had personal knowledge of what was being done; that there was very little with respect to superceded and obsolescent property in his report, only in a very general way.

He included all physical property located within the District of Columbia actually used and useful for electrical operations within the District. Under that definition he excluded for instance certain portions of certain transmission lines within the District but used and useful only for service without the District, and excluded a few items no longer used and useful which are not specifically mentioned in this report. (He is here referring merely to property no longer in use or useful.) The report clearly sets forth
190 the properties which have been excluded under the various I. C. C. classifications under the heading "Property not included," appearing on page XXX of "Basis and Conclusions." He considered tangible capital in other departments, as including property which might perhaps once have served a useful purpose in connection with electrical operation within the District, but not now so used.

A reproduction estimate such as this is necessarily a hypothetical case, and must be based upon some adopted basis at the start. His basis is stated on page XVIII of "Basis and Conclusions" as follows:

"By cost of reproduction, or "reproduction cost" is herein meant the estimated normal cost to acquire the lands and reproduce substantially identically used and useful property as of July 1, 1914, as a continuous process in the most efficiently humanly practicable manner, under the hypothetical condition that the present property is non-existent for purposes of inventory, and more specifically as follows."

(Followed by a detailed statement under various headings of the main features forming the basis of his work.)

He assumed that the property is to be reproduced as a continuing

process during the period of three years terminating on July 1, 1914, and that the property in part is put to use and service started at the end of the second year. He assumed that the company was organized and incorporated prior to construction, for the purpose of construction, and the estimated cost of such organization for construction only, exclusive of all costs of promotion, financing and operations are included.

He excluded from his work the cost of promotion, financing and operation only because they were not considered to be a part of his work or of his report on physical property only. He assumed that engineers would be employed to make preliminary surveys and reports, to prepare plans and specifications and to supervise construction; that the property (aside from principal power *plans* and substation apparatus, meters, services, commercial lamps and
191 general equipment) was installed by contractors on percentage, or cost-plus-fixed-sum basis, with certain major materials and apparatus purchased directly by the contractors (transcript, page 284); that the principal apparatus of power plants and substation equipment would be contracted for directly with the makers under the engineers' specifications, and that meters, services, and commercial lamps are installed, or would be installed by the company.

In his report he in several places used the term "contractor's percentage." This term as used applies in part to contractor's profits and in part to certain undistributed costs necessarily incident to the construction but which as a matter of convenience in application were not allocated to the individual unit prices. That is, in some case-, the individual unit prices having been totalled, he then added to that total the contractor's percentage, constituting in part certain other costs not distributed, and certain profits. (page 285.)

The reproduction is intended to be that of substantially identical property. The theory was not that of comparative plant or equivalent service. No modifications or substitutions were considered, except in the case of a few obsolete items of minor importance. By "obsolete" he means obsolete as to manufacture and not as to present serviceability, use or worth. Each item was considered as reproduced in identical location. He reproduced each thing as it was and where it was and he assumed that he must go through all processes, meeting all costs which would be incident to the actual construction of such property in such manner.

As to the topographical and physical conditions, construc-
192 tion was supposed to be carried on under physical and topographical conditions reasonably assumed to exist as of the date of the investigation, were the property itself (other than land) non-existent except for the purpose of inventory. For illustration, he included in the cost of reproduction the paving which he found would have to be removed and replaced in order to reconstruct under the present topographical conditions, even though under the actual physical conditions existing at the time the work was performed, some or much of the paving was not actually cut and replaced.

The cast- as applied to the inventory are in three classifications,

namely, unit costs, "contractor's percentage" and general costs. Unit costs are applied directly to the inventory item and in nearly all cases, and except where otherwise noted, include the labor costs to the contractor of the items in place. There are some items, which he indicated by stars or otherwise in which he did not included labor, but he added the labor at the end of the colum- of unit cost. (Transcript page 286.)

"'Contractors' percentage- cover additional costs and profit of the contractor and are applied to itmes or groups of items, as the case may be, of property assumed to be installed by contract." (Transcript page- 286 and 287.)

General costs refer to the necessary and proper general costs of the owner as stipulated in the particular I. C. C. classification referred to. These general costs were applied only to final totals; that is, to the final summaries. General costs are often referred to as overhead charges. He adopted the different term merely because because he thought the designation better indicates the nature of those costs than the term "over head charges"; that costs are not necessarily values. The costs applied are intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of
193 value, cost of reproduction, unstable, unsound, and unsafe.

In the case of certain commodities of fluctuating prices, such as copper and iron, the market prices were averaged over a period of seven years, and the trend of prices studied, not to the end that the priced adopted might be representative of average past conditions, but that they might fairly represent prices as of the date of the investigation, July 1, 1914, under normal conditions such as should have obtained had the causes of fluctuations been non-existent. Prices current July 1, 1914, were taken as to all commodities of stable prices, or the prices of which, as in the case of lumber, are on a steady upward trend; that he is fixing the reproduction cost of the physical property only. (Transcript page 288.)

Mr. Syme: You were fixing the reproduction costs, as I understand it, on the basis of a going, operating thing under construction, were you?

Mr. Pillsbury: We were fixing the reproduction cost of the physical property only on that basis.

Accrued depreciation was included in this report strictly on what is ordinarily called the straight line method, involving age and useful life, and the ratio between them, or the equivalent where age cannot definitely be ascertained. Depreciation of the physical items of property of this company, a going concern, is held to mean the loss through loss of service life, of capital assets represented by depreciable costs. That probably is a little difficult to understand. We adopted the term "depreciable costs" in lieu of what is ordinarily called the wearing value. Whether wisely or unwisely we adopted that term because we were not dealing with values, and because we wished to explicitly get it on record that we were not dealing with values, and because our depreciation was not on the basis of wear

except in extreme cases. By "depreciable costs" we merely mean that portion of the cost of reproduction subject to depreciation. It is the cost of reproduction of whatever part does not depreciate. The part that does not depreciate, in our estimation, and as the basis for this report, is that part which is left after the article has finished its service in its present function. That we call residual value, value still remaining in the item for sale purposes or any other purposes. The difference between that figure of reproduction cost and the residual value is subject to depreciation. That we called depreciable cost. We merely mean there that depreciation of physical items of property of this company constitute loss of service life of those parts of the capital assets not constituting physical items and representing the difference between reproduction and residual value of those physical items.

"Accrued depreciation, as set forth, does not indicate nor correspond with any particular physical deterioration, loss of efficiency or loss of present serviceability, but it does indicate corresponding loss to date of investigation with respect to total serviceability or total service capability, through expiration of a proportional part of the service life. For illustration, a certain machine of any character might still be in the same physical condition as when pur-
194 chased, for all practical purposes; it might be performing its function perfectly for all practical purposes, right up to the date of its being discarded for any one of several reasons. Our report setting forth the depreciated value of that particular piece of apparatus does not, therefore, indicate—that is, the depreciated value or the accrued depreciation, as set forth with respect to its serviceability at the time. It merely indicates what part of its useful life, in our estimating, has expired, and the ratio of remaining useful life to total useful life."

The reproduction cost as set forth in these five volumes in details and summary are fair and reasonable and true in his opinion. (Transcript pages 292-3.)

That under instruction of the Public Utilities Commission the value of the land included in his report at $433,792, without depreciation was appraised by the Assessor of the District of Columbia and his assistants; that he adopted their appraisal except that he instructed the assessor as to what land to appraise. He furnished the appraisers with an inventory of the land to appraise. He discussed with the appraiser and agreed with him on the appraisal which was this; that the values as set forth with respect to each plot of land should represent in the opinion of the assessor what would pe paid by a willing buyer to a willing seller, in a bona fide sale, with no special inducement either to sell or to buy, as of July 1, 1914; that during the course of his work he was in consultation with the Commission from time to time or with the chairman of it and that it was pursued under the general supervision of the chairman; that he didn't consult with other members of the Commission individually but had frequent consultation with the Commission as a whole; that he was an employe of the Commission, paid a certain amount per

day for services on the work, plus traveling expenses; and that his work was done under the immediate supervision of Dr. Edward W. Bemis. (Transcript page 296.)

Whereupon the five volumes comprising Mr. Pillsbury's report was identified by the witness and offered in evidence and received as such over the protest and exception of the Potomac
195 Electric Power Company (See transcript page 297) and the right to cross-examine this witness was reserved.

196 ANDREW SANGSTER, another witness, was called on behalf of the Commission and upon being first duly sworn testified that he was a resident of Washington and has resided there since June, 1914, and had resided in Chicago prior to that time; that he was a chartered accountant; was educated in Edinburgh, Scotland; that he commenced his training in Edinburgh in the year 1897; attended the university course as prescribed and took the necessary examinations, qualifying in the year 1905 and was admitted to the Edinburgh Society of Chartered Accountants in 1906. He was shortly after given charge of audits and investigations of private and pu' lic corporations, including commercial, industrial, insurance, banking and investment companies, which brought him in close touch with many of the greater American corporations, the securities of which are largely distributed in foreign countries. The vast scale of these operations gave him a great desire to come to America. He was eventually successful in obtaining a position on the staff of Marwick, Mitchell, Peat & Company, with offices in the principal cities of the States with partnership relations in England and France and very soon was given charge of the investigation of the Des Moines Gas case and it was there he met Dr. Bemis and following thereon he was put in charge of most of the public utilities investigations engaged in by the Chicago office of that firm. In 1904 (transcript 302) at the invitation of Dr. Bemis he came to Washington to take care of the valuation bureau organized by the Public Utilities Commission of the District of Columbia in connection with the valuation of public utilities in the District; that the term "chartered accountant" is synonymous with what is called in this country a "certified public accountant," and that he held a degree of certified public accountant of the State of Wisconsin. He is chief accountant of the Accounting Department of the valuation bureau and in pur-
197 suance of his duties as chief accountant he made an investigation of the accounts of the Potomac Electric Power Company to ascertain the amount of money expended in the property and equipment of said company. The work was done directly by the valuation bureau of the Public Utilities Commission and after completing this work he made a report to the Commission with reference to it and to Dr. Bemis representing the Commission. He identified the three volumes designated "Potomac Electric Power Company Report, July 1, 1914" marked Volumes I, II and III, signed by him, with an introductory letter of report addressed to Dr. Bemis on December 15, 1915, contained in the first 25 pages of the report; and testified that he made that report personally

and testified that the report, according to the best of his knowledge and belief sets forth the method under which he made the accounting, and a statement, more or less in detail, of how the account was made up. He testified (transcript page 305) that there was no specific organization of the accounting department which consisted of himself, chief accountant, and a senior accountant in charge of the specific investigations that were being conducted at one time simultaneously. Each investigation was further subdivided so that the duties could be spread among several other accountants acting under the immediate control and direction of the accountant in charge. Each of these lesser accountants was assisted by a third accountant; that his examination was confined strictly to the books and records of the company. (Transcript page 306).

In explanation of his method, the witness said (transcript page 307)—"that the act creating the Public Utilities Commission of the District of Columbia requires the Commission to ascertain the amount of money expended in the plant and equipment of the utility company. This expression "amount of money expended" is a very acceptable one, because of its freedom from ambiguity. We often hear of terms such as "original cost," which is confused with "book value" and other terms; but when we have our
198 attention directed to the requirement to ascertain the amount of money expended, there can be little doubt as to what we have to strive for" and that he based his examination of the record upon this act of Congress; and as a convenient starting point he began with the plant and equipment account as contained in the balance sheet of the company at the date of the valuation and said "if you will turn to page 4 of the report you will find that this amount shows a total of $11,529,173.67 as the book value of the plant and equipment (308). We have now to ascertain what this book value comprises. On page 5 you will find these summarized briefly in five different elements:

First, the plant and franchises of the Potomac Light and Power Company, $501,055.31;

Second, the plant and franchises of the United States Electric Lighting Company, $4,338,576.17;

Third, the plant and equipment of the Potomac Electric Power Company, $6,500,718.63;

Fourth, an item for interest, etc., on bonds, $132,500;

Lastly, an item of discount and commission on bonds of $56,323.56.

The combined total of these makes up $11,595,173.77 the figure referred to on page 4"; that the second and third of these items alone have any bearing on the amount of money expended on the plant and equipment.

"On page 9 a classification of the different elements contained in these two, $6,500,000, roughly speaking, of the Potomac Electric Power Company, and $2,361,000 of the United States Electric Lighting Company. The combined total is $8,862,144.17.

This, in a preliminary way, is the amount which has been as-

certained, in the first place, from the books of the company as having any relation to physical costs.

199 After an exhaustive analysis of all various accounts included in this summary on page 9, we find that the total of $8,862,000 contains other items besides what may be strictly regarded as applying to physical property or physical costs." These items shown on page 9 were taken directly from the books of the company.

Mr. Sangster: You will find, in Section 17, Exhibits D and E, the annual amounts which go to make up that total shown on page 9. These figures are taken from accounts, or grouped from several accounts in the ledgers of the company.

Going back to page 11, (310), I find that in order to determine absolutely the amount of money expended in plant and equipment I have to deduct, first, an item of $200,000 in the accounts of the United States Electric Lighting Company, paid by that company for the property, rights, and franchises of the old United States Company of New York. Next, there should be deducted an item of $389,920.72, for what is termed extraordinary expense, bond discount, etc., apportioned to the different plant accounts in the books of the Potomac Electric Power Company. Sundry other items making a total of extraordinary expenses of $603,534.78 are to be deducted.

A further deduction must be made for the cost of equipment which has been sold, scrapped or abandoned. That is given on page 11. This amounts to $430,971.44 making total deductions of $1,034,506.22.

A proper and impartial adjustment requires that we add to the company's book figure a sum of $42,017.59 for expenditures which have been charged to operating expenses but which, in my opinion, properly apply to plant and equipment.

200 If you deduct the last mentioned item from the total deductions you will get a net of $992,488.63. Reducing the figure found on page 9 by this amount brings out the final figure, as adjusted, of $7,869,655.54 as the amount of money expended on plant and equipment.

This final figure, however, includes an element of engineering and superintendence, also some interest charges and executive salaries and payments for special services.

These last items are shown on the table on page 13.

In order to simplify the matter I have concluded to eliminate these items [aggregating $220,078.73], not finally, but because they are incomplete. In other words, the company has not uniformly charged the plant and equipment account with overhead expenses throughout the whole period, and in order to assist the Commission in its treatment of the item of overhead charges I have decided that we had better show these separately, so that the Commission may make what allowances it determines ought to be made to the actual amount expended, before any item of interest or engineering or executive salaries is included.

On that basis, the cost of plant and equipment, excluding these

general overhead charges, is $7,619,576.81. That is shown on page 14, the beginning of the table.

To complete the history of the book value of $11,529,000, which was mentioned in the outset, I have given a table on pages 14 and 15 which shows all the items included in that book figure.

These are the results obtained and principles adopted in the accounting investigation."

The historical matter on pages 2 and 3 of the report was compiled from the early records of the various companies; that is, the Potomac Electric Power Company and its predecessors.

201 That according to the best of his information and belief the statement on page 4 under the heading "State of the Records" is a correct statement of the condition in which he found these records; that he had personal knowledge of them from the records submitted.

The statements on page 4 and the top of page 5 is a condensed balance sheet, presented in his own form; that is, his own arrangement, from the figures given in the detailed balance sheet of the company. In other words, while the condensation is his own, the figures, fundamentals, were taken from the records of the company as at June 30, 1914; and that according to the best of his personal knowledge they were correctly taken from the books of the company.

Summary (B) on page 5 is compiled from the data of analysis taken from the books of the company. Again, the arrangement is his own, but it is based on what he believes to be the correct statement of the figures in the books of the company; and the same applies to Summaries (C) and (D) on pages 6 and 7, and under subdivision (E) on page 7; summary (F) on page 9 is, as already explained, a compilation of all figures taken from the various plant accounts in the ledgers of the company from the dates of incorporation of the various companies examined, and correctly represent the books of the company; and the statement shown on page 11 of the original cost of the property now owned is based on an examination or study of the figures contained in the books of the company. "The conclusions, of course, are my own." "Having collected and arranged all the data, I subjected them to careful examination and scrutiny, in order to ascertain, as nearly as possible, whether these expenditures referred to property now in existence or not. The result of

202 that study and the conclusions based upon the same are shown in summary form in Exhibit G of Section XVII. There you will find the various elements of the property, as given on page 9, again tabulated, amounting to $8,862,144.17. The amounts excluded from the various divisions are given in the fourth column. The total items excluded amount to $430,971.44. I have taken out of the plant expenditures given in the first column the extraordinary expenditures already explained, which amount to $603,534.78. I have restored to the plant accounts $42,017.59, the items charged to operating expenses, but properly chargeable to plant. The net deduction is $992,488.63. These are the totals that we have already referred to, bringing out the final amount, adjusted, of $7,869,855.54.

These totals of the several columns to which they apply we may take in their order.

Land: We have restored $28,488.67. That is, as it were a negative deduction, or an addition.

The first item represents a peculiar case. The company purchased land and subsequently sold it at a profit. The original purchase and the subsequent sale were both recorded in the books, and a profit was left in the plant account, and naturally operated as a deduction from plant expenditures. In eliminating both the purchase and the sale, we eliminate that profit. The result is, of course, an addition to the plant account. Now, if you wish to learn the exact contents of that item, turn to Schedule 12 in the volume of Schedules in Section 1, Volume III, and you will find that this refers to property on I street between 14th and 15th streets, northwest. The property was purchased in 1906 and sold in 1913.

Next, in the section dealing with steam power equipment, there has been eliminated $201,742.60. The detail of that item is given in Table 4 of Section III in Volume I. This amount was
203 made up of numerous items summarized in Table 4. The final figure is given on page 3 of the Table in the last column. The method by which it has been obtained, I think, is self-explanatory. The detail is given on pages 1, 2 and 3.

I can go through each one of these items, if you wish, the process is the same. The detail is given in the Table which is referred to in the summary exhibit of each section.

The sections are in Roman numerals on the left, and the tables are the last tables in the section."

The item of overhead lines and poles opposite the Roman figure VII of $33,486.78 is merely a transfer from other sections. It is not an elimination or an addition. It is merely a reconciling figure between the final amount expended on pole and overhead lines and the book value. It does not affect the final figure. It is not arbitrary. After an examination and study of all the accounts kept by the company pertaining to plant, we find that some will contain expenditures which ought, strictly speaking, to be in other sections or in other plant accounts; and in order that our accounting here should fully account for every item that it might embrace, we have made these transfers. There is nothing in the report which would support the way in which these figures were got. They do not affect the final result; and he thought it was already voluminous enough. His idea was that since neither added to nor diminished the final figure, it was not necessary to put into the report the various steps he went through to establish those adjustments. These adjustments would be deducted out of an account where it ought not to be and put it into an account where it ought to be so that it would be in there where it should be and would not affect the final result in any way.

204 Mr. Barbour: What useful purpose does that serve in this investigation:

(a) It enables us to classify in its proper section each item of property. * * * In other words—this is an extreme case—if there

were boilers in overhead lines in the account of the company, we would have to make a transfer in order to get those boilers into the steam plant equipment.

Mr. Syme: If they had originally been charged to overhead lines?

A. Yes, sir.

Mr. Barbour: Referring to that item of $33,486.78, or the items which make it up, do you know where they originally appeared on the books of the company and what they were.

Mr. Sangster: Our working sheets will show the content- of that table and all the others involved in this inter-sectional adjustment.

Mr. Syme: And these are made from your working sheets?

Mr. Sangster: Yes, sir.

Mr. Syme: And they are correct, to your best knowledge?

Mr. Sangster: They are taken from the books of the company.

Mr. Barbour: Do you mean that they are taken from the books of the company, or are they so entered here as the result of the substitution of your judgment for the judgment of the officers or employes of the company who made the original entries?

Mr. Sangster: If I understand the question correctly, the adjustment was made, of course, on my own discretion. The figure was taken from whatever plant——

Mr. Barbour (interposing): You substituted your judgment for the judgment of the man who made the original entry?

Mr. Sangster: It might be put that way, yes, sir.

Commissioner Brownlow: With respect only to whether or
205 not you had a different idea from the original bookkeeper as to what account this original charge should be made to?

Mr. Sangster: Yes, sir. * * * The summary of plant and equipment as adjusted on page 13 follows directly from the final figure obtained on page 11, and depends upon the same process as was given in the answer to the question for page 11; that is to say, the final adjustment figure *is* $7,869,655.54 is obtained after making all these adjustments and eliminations which we have just described. And the same is true of the final analysis of the plant and equipment account on page 15.

With reference to the statement under the heading "Materials and Supplies" on page 16, the witness testified that it included an allowance which has been made based upon the average amount of stores and general equipment shown by the company in its balance sheet for each year since 1910 and including also July 1, 1914, and was taken directly from his balance sheets referred to. The allowance made is $150,000, which he has concluded is ample to cover an allowance for materials and supplies, the highest heretofore on hand being $145,500 odd, and that the allowance for working capital on the same page is obtained from a consideration of the tables showing the fixed current assets and liabilities divided into two main groups: one, the investment in plant and equipment; and two, the current assets and the sources from which funds have been obtained, and he derived that information from the balance sheets of the company. The grouping is quite arbitrary, based for the above purpose of making allowance for working capital, but the figures, as the basis, are

taken from the books of the company, and the allowance is reasonable. "Following the matters we have just gone into, on page 19, there is a summary of my conclusions or findings as to the amount expended on plant and equipment, always, of course, excluding any allowance for general charges, as already explained. This amounts to $7,649,576.81. Adding the allowance for materials and
206 supplies as given on page 16, namely, $150,000, and the allowance for working capital found on page 19, $90,000, gives the total of $7,889,576.81. Following on these conclusions, I have given, in as concise form as possible, a short description of the main considerations involved in each one of the sections beginning on page 20."

Commissioner Newman: Mr. Sangster, you have heard this sixth clause or paragraph read—"That the Commission shall ascertain, as soon and as nearly as practicable, the amount of money expended in the construction and equipment of every public utility, including the amount of money expended to procure any right of way." Does your report, in so far as the records of the company show, give that information?

Mr. Sangster: Let me explain it in this way—I have made the assumption, first of all, that, just as the engineering department or the valuation bureau has to determine the cost to reproduce the property as it now exists, so the first duty of the accounting department was to find, as nearly as practicable, the amount of money expended on that same property and it now exists. * * *

In addition to showing the amount of money expended as nearly as practicable, in the property as it now exists, I have endeavored to show everything else that is included in the plant account of the Potomac Electric Power Company. Therefore, in addition to giving the amount of money expended on the property now in existence, I have shown what is still left in that plant account by reason of property which was formerly in existence and has now been retired from service. Whatever is in the account is still there. It may not be the original cost; it may be the difference between the original cost and something they attempted to write off in order to be rid of various units that have gone out of service.

I have also shown, apart from the physical property in the plant account, discount on bonds, legal and special services,
207 and so forth, on page 15. That, I think, is a complete picture of the company's plant account. It shows everything that is in it. It does not show, as Mr. Almert would like to have shown, all of the expenditures ever made by this company, because that would be a never ending task.

The company itself has kept a depreciation account and has written out of its plant account large items for plants withdrawn from service. I think this statement of the complete content of eleven and a half millions of dollars in the plant account of the Potomac Electric Power Company answers the question from whatever viewpoint you wish to approach it. In other words, if you want to consider not only the company's original property now in existence, but also the

entire expenditures for all property, you have it in that summary there and you can have it itemized by going to the proper table.

Mr. Barbour: But it does not show the total amount of money expended in the construction and equipment of this utility, does it?

Mr. Sangster: You mean the amount of money ever expended by this company?

Mr. Barbour: Yes.

Mr. Sangster: No, sir. It shows the total amount of money expended less what the company has itself deducted from its plant account. It shows that total amount of money expended by the company less what the company itself has removed from its plant account, or deducted from it.

Mr. Barbour: Plus other items that you have removed from the plant account?

Mr. Sangster: But they are stated; they are in the list.

Commissioner Newman: As a matter of fact, Mr. Sangster's report complies with your interpretaton of the act.

Commissioner Brownlow: Let me ask if this is true; that this shows a detailed picture of the books of the company, showing what has been expended in the construction and equipment of this utility, less the deductions which the company itself has made from time to time?

208

Mr. Sangster: That is quite correct.

Commissioner Brownlow: Then there are other deductions which you think should be made, which are set forth in detail?

Mr. Sangster: Yes.

Mr. Bowen: I will follow that up by asking Mr. Sangster if in his analysis of the operating expenses he added these capital things that have been swallowed up in the operating expenses?

Mr. Sangster: Let me say with respect to that that we have not made the same extensive investigation of the operating expense account, but we have kept a careful general survey of the maintenance accounts, which are the accounts that would include any expenditures which might, from another point of view, be included in the plant account. It is because of that careful watch that we kept of the maintenance account that we discovered $47,000 odd, I think it was, which was added into the plant account.

Mr. Bowen: * * * We do think the report should only reflect what the books show.

Commissioner Newman: Not at all. He has done this work under our direction. He has given us the benefit of this expert opinion, and is doing so at our request.

Chairman Kutz: He has pursued the investigation in accordance with the instructions of the Commission.

209

For the purpose of presenting as shortly as practicable the points still in controversy in this case and shortening the record, the following facts are stipulated in respect to the historical cost of the property:

Mr. Sangster ascertained and reported to the Commission that the historical cost of the property of the Potomac Electric Power Company as of July 1, 1914, was $7,869,655.54, including the over-

head charges of $220,078.73, which is set up separately, plus an allowance of $90,000 for working capital and $150,000 for supplies, making a total of $8,109,655.54 as the cost to July 1, 1914.

The company claimed that the actual cost was as of July 1, 1916, $15,642,431.02, including an allowance of $387,021.24 for working capital and $132,104.12 for supplies.

The Commission, by its ascertainment, found the cost of the physical property as of July 1, 1914, to be $8,948,620.01, plus an allowance of $135,000 for working capital and $128,893.08 for supplies, to which they add net additions to the property from July 1, 1914, to Dec. 1, 1916, $605,173.34 (opinion, page 63), making a net ascertainment of cost as of July 1, 1916, to be $9,817,686.43, a difference of $5,824,744.59 as of July 1, 1916, between the claims of the company and the ascertainment of the Commission on this point.

The following statement shows how these different results were arrived at. Mr. Sangster and the accountants for the company both agreed that the face of the books showed the following results as of July 1, 1914:

(*a*) Plant and Equipment Account..... $11,529,173.67

The books do not show in separate classifications the composition of this gross amount of $11,529,173.67.

Mr. Sangster with his assistants, undertook by an examination of the original entries, vouchers, job cards, etc., of the company to subdivide these costs into various subdivisions as follows:

Land, buildings, steampower equipment, electric power equipment, turbo generator equipment, miscellaneous power plant equip-
210 ment poles and overhead wires, underground conduits, underground cables, street and park lighting system, line transformers and devices, electric services, electric meters, arc and incandescent lamps, general equipment, general and miscellaneous, and property sold, scrapped and abandoned; and to exclude from such accounts all items which he thought should no longer appear in the capital accounts with the result that he allowed values under these various heads as follows:

Land	353,361.16
Buildings	773,278.88
Steam Power Equipment	735,238.28
Electric Power Equipment	1,146,717.00
Turbo-generator Equipment	770,290.03
Misc. Power Plant Equipment	37,448.45
Poles and Overhead Wires	257,466.68
Underground Conduits	1,223,986.61
Underground Cable	1,428,976.47
Street & Park Lighting	76,002.08
Line Transformers & Devices	133,435.17
Electric Services	387,434.10
Electric Meters	292,248.17

Arc. & Inc. Lamps	50,367.23
General Equipment	59,932.28
General & Miscellaneous	157,807.71
Miscellaneous	.....
Property Sold, Scrapped & Abandoned	14,334.76
	$7,869,655.54

And disallowed therefrom the following items:

Loss on Property Sold, Scrapped & Abandoned	388,953.85
United States Elec. Ltg. Co. of N. Y.	100,000.00
Heisler Electric Company	100,000.00
Potomac Light & Power Company	208,189.50
U. S. E. L. Co. Fran. & Prop. Increase	1,977,150.63
Special Services—Crosby & Lieb	550,000.00
Legal Expenses	8,492.90
Expense of Mortgages	10,651.41
Discount on Bonds	166,073.56
Interest on Notes	14,543.63
Interest on W. Ry. & El. Co. on Bonds	132,500.00
Interest on Cable Account	2,962.65
which when allowed to his allowed items of	7,869,655.54
aggregated and balanced the plant and equipment account, as shown on the books of the Company	$11,529,173.67

The Commission in passing on Mr. Sangster's work, however, made certain adjustments therein as follows:

To the various plant accounts as subdivided by Mr. Sangster they made net additions aggregating $222,863.80 after reducing
211 Mr. Sangster's allowance on land by the amount of $21,804.30; and in addition thereto restored in toto the following items eliminated by Mr. Sangster from the plant account:

Cost of U. S. E. L. Co. of N. Y.	100,000.00
Cost of Heisler Electric Company	100,000.00
Cost of Potomac Lighting & Power Company	208,189.50
Legal expenses	8,492.90
Expense of Mortgages	10,651.41
Discount on Bonds	166,073.56
Added—an allowance for Construction in progress and not yet allocated to proper accounts	1,586.38
And in lieu of the three items of Interest on Notes, Interest W. Ry. & E. Co. on Bonds, and interest on Cable Account aggregating $150,006.28 already in the plant account but eliminated by Sangster, as well as in lieu of an additional claim by the company as a proper charge for interest during construction, amounting to	253,052.75

and not charged to plaintiff's account, made a gross allowance of	240,000.00
for Interest During Construction, thereby bringing their total allowances, exclusive of Working Capital and Supplies, to	8,927,513.00
And allowed for Working Capital in lieu of the $90,000.00 originally allowed by Mr. Sangster	135,000.00
And confirmed his allowance for supplies of	150,000.00
thus bringing their total allowance for Historic Cost to July 1, 1914, to	9,212,513.00
And adding thereto the net additions to capital from July 1, 1914, to July 1, 1916, of	605,173.34
Brought the total cost on July 1, 1916, to	9,817,686.43

The claim of the company was that the showing of its plant accounts as of July 1, 1914, of $11,529,173.67 should be taken as correct except as shown by either side to be erroneous, to which should be added the net additions to July 1, 1916, of $605,173.34 agreed by both sides to be correct which brought the plant and equipment account to that date to $12,134,347.01, to which should be added certain other expenditures shown by the books to have been made and properly chargeable to plant or other capital accounts, but which under bookkeeping methods in vogue at the time had been paid from and charged to earnings, which, if allowed, brought the total to $15,642,431.02, as follows:

212

Unamortized debt, discount & expense	201,174.42
Great Falls Power Site	1,000,000.00
Electric Trsting Laboratory Stock	2,700.00
Graceland Cemetery Property	116,155.80
Part Cost of Potomac Light & Power Company	7,833.23
Property abandoned	7,046.46
Suspense Job Work in Progress not Complete	9,420.29
And in addition thereto, the following items which it claimed to be proper capital charges but it has stipulated the books show was never charged to the capital account but were paid from a charge to operating expense, an allowance for	
Engineering and Superintendence	524,807.69
General Administration	322,013.32
Interest During Construction	253,052.75
Difference between Cost of Eye street property and Proceeds when sold	28,488.67
Advertising, Canvassing and Soliciting	295,933.97
Betterments and Improvements	170,963.59

Electric Meter Installation	38,013.98
Lightning Arresters	11,354.48
Working Capital	387,021.24
Supplies	132,104.12
Showing an aggregate of	$15,642,431.02

There is appended hereto a comparative statement marked "Potomac Electric Power Company Comparison of Historical Cost Appendix 1" which shows the difference between the record of Sangster, the claims of the company, and the award of the commission confirmed by the court; under Columns A and G, appear the classes of the company; under Column C, Sangster's ascertainments; under Column D the commission's adjustments of Sangster's ascertainments; Column E, the Commission's net allowances; and under the Column F (Commission's Discards) are shown the items claimed by the company but discarded by the Commission. It will not be necessary to quote the evidence bearing on any of the other items and the facts and evidence bearing only on these will therefore be incorporated in this stipulation and will be referred to by the number of the line in which they appear in that statement.

(Here follows table marked page 213.)

Line number.	A Historical cost.
1	Plant & Equipment Dec. 31, 1909
2	Net Additions to July 1, 1914
3	Total Net to July 1, 1914
	Detail as adjusted by Sangster:
	I Land
	II Buildings
	III Steam Power Equipment
	IV Electric Power Equipment
	V Turbo-generator Equipment
	VI Misc. Power Plant Equipment
	VII Poles and Overhead Wires
	VIII Underground Conduits
	IX Underground Cable
	X Street & Park Lighting
	XI Line Transformers & Devices
	XII Electric Services
	XIII Electric Meters
	XIV Arc & Inc. Lamps
	XV General Equipment
	XVI General & Miscellaneous
	Miscellaneous
	Property sold, scrapped & abandoned
4	Engineering & Superintendence
5	Executive Salaries
6	Sangster's Totals
7	Loss on Property sold, scrapped & abandoned
8	United States Elec. Ltg. Co. of N. Y.
9	Heisler Electric Company
10	Potomac Light & Power Company
11	U. S. E. L. Co. Fran. & Prop. Increase
12	Special services—Crosby & Lieb
13	Legal Expenses
14	Expense of Mortgages
15	Discount on Bonds
16	Construction in Progress
17	Interest on Notes
18	Interest W. Ry. & El. Co. on Bonds

Appendix I.

Potomac Electric Power Company.

Comparison of Historical Costs.

t.	B Books.	C Sangster ascertainment.	D Commission adjustment.	E Commission allowance.	F Commission's discards.	G Ham.
1909	$9,355,619.28	—	—	—	—	9,355,619.28
	2,173,554.39	—	—	—	—	2,173,554.39
914	11,529,173.67	7,869,655.54	35,261.19	7,904,916.73	3,624,256.94	11,529,173.67
		353,361.16	—21,804.30	331,556.86	—21,804.30	
		773,278.88	—95,060.90	678,217.98		
ipment		735,238.28	2,681.28	737,919.56		
quipment		1,146,717.00	5,050.00	1,151,767.00		
Equipment		770,290.03		770,290.03		
t Equipment		37,448.45	505.83	37,954.28		
d Wires		257,466.68	47,505.20	304,971.88		
duits		1,223,986.61		1,223,986.61		
le		1,428,976.47	44,719.39	1,473,695.86		
ghting		76,002.08	19,200.58	95,202.66		
s & Devices		133,435.17	16,298.60	149,733.77		
		387,434.10		387,434.10		
		292,248.17		292,248.17		
s		50,367.23		50,367.23		
nt		59,932.28	14,601.11	74,533.39		
laneous		157,807.71	—92,541.71	65,266.00		
			94,106.11	94,106.11		
apped & abandoned		—14,334.76		—14,334.76		
		7,869,655.54	35,261.19	7,904,916.73		
ntendence			95,637.40	95,637.40		
			91,965.21	91,965.21		
	8,258,609.39	7,869,655.54	222,863.80	8,092,519.34		
ped & abandoned		388,953.85	244,668.10		—144,285.75	
f N. Y	100,000.00	100,000.00	100,000.00	100,000.00		
	100,000.00	100,000.00	100,000.00	100,000.00		
pany	208,189.50	208,189.50	208,189.50	208,189.50		
, Increase	1,977,150.63	1,977,150.63	—1,977,150.63		—1,977,150.63	
ieb	550,000.00	550,000.00	—550,000.00		—550,000.00	
	8,492.90	8,492.90	8,492.90	8,492.90		
	10,651.41	10,651.41	10,651.41	10,651.41		
	166,073.56	166,073.56	166,073.56	166,073.56		
			1,586.38	1,586.38	1,586.38	
	14,543.63	14,543.63				
Bonds	132,500.00	132,500.00	240	240,000.00	89,993.72	

19	Interest on Cable a/c	2,962.65	2,962.65				
		11,529,173.67	11,529,173.67	.....	8,927,513.09	2,601,660.58	
20	Net Additions to July 1, 1916	605,173.34	.....	.....	.....	.....	605,173.34
21		12,134,347.01					12,134,347.01
22	Unamortized Debt Discount & Expense	201,174.42	.....	.....	.....	201,174.42	201,174.42
23	Electric Testing Lab. Stock	2,700.00	.....	.....	.....	2,700.00	2,700.00
24	Great Falls Power Site	1,000,000.00	.....	.....	.....	1,000,000.00	1,000,000.00
25	Graceland Cemetery Property	116,155.80	.....	.....	.....	116,155.80	116,155.80
26	Part Cost of Pot. Light & Power Co	7,833.23	.....	.....	.....	7,833.23	7,833.23
27	Property Abandoned	7,046.46	.....	.....	.....	7,046.46	7,046.46
28	Suspense Job Work in Progress Not Complete	9,420.29	.....	.....	.....	9,420.29	9,420.29
	Other Capital Costs as shown by books, but charged at time to Operating Expenses.						
29	Engineering & Superintendence	524,807.69	.....	.....	.....	524,807.69	524,807.69
30	General Administration	322,013.32	.....	.....	.....	322,013.32	322,013.32
31	Interest during Construction	253,052.75	.....	.....	.....	253,052.75	253,052.75
32	Difference between Cost of Eye Street property and proceeds when sold	28,488.67	.....	.....	.....	28,488.67	28,488.67
33	Total as per Table 9	14,607,039.64					14,607,039.64
34	Advertising, Canvassing & Soliciting	295,933.97	.....	.....	.....	295,933.97	295,933.97
35	Betterments & Improvements	170,963.59	.....	.....	.....	170,963.59	170,963.59
36	Electric Meter Installation	38,013.98	.....	.....	.....	38,013.98	38,013.98
37	Lightning Arresters	11,354.48	.....	.....	.....	11,354.48	11,354.48
38	Working Capital	387,021.24	90,000.00	45,000.00	135,000.00	234,125.36	519,125.36
39	Supplies	132,104.12	150,000.00	.....	150,000.00		
40	Total as per books	15,642,431.02			9,212,513.09		
41	Sangster Allowance per Table 8 plus Working Capital & Supplies	.....	8,109,655.54				
42	Net Additions to July 1, 1916				605,173.34	.....	.....
					9,817,686.43		
43	Total Commission's Discards					5,824,744.59	
							15,642,431.02
44	Add Allowances to get Commission's Gross Discards	$1,586.38 89,993.72				91,580.10	
						$5,916,324.69	

Summary of Net Expenditures as Per Books.

	Total.	Potomac Elec. Power Company.	U. S. Elec. Lighting Company.
Property Account	$481,261.36	.....	481,261.36
Land	486,719.47	380,360.62	106,358.85
Buildings	594,939.69	405,524.64	189,415.05
Steam Plant	1,389,019.12	1,211,838.84	177,180.28
Electric Plant	1,480,005.34	1,279,364.63	200,640.71
Special and Turbine Construction	656,970.72	353,501.87	303,468.85
Miscellaneous Power Plant Equipment	28,554.80	22,407.09	6,147.71
Underground Conduits	1,283,419.09	829,942.02	453,477.07
Poles and Overhead Lines	271,630.74	257,737.38	13,893.36
Cable	1,583,986.71	1,254,163.94	329,822.77
Street and Park Lighting System	104,845.06	97,517.80	7,327.26
Line Transformers and Devices	122,660.33	108,724.64	13,935.69
Electric Services	375,238.37	361,344.23	13,894.14
Electric Meters	262,843.63	233,556.27	29,287.36
Lamps, Signs, etc	42,084.69	27,160.60	14,924.09
General Equipment	68,452.83	64,790.30	3,662.53
General and Miscellaneous Expenditures	48,889.37	4,629.81*	53,519.18
Engineering and Superintendence	95,060.98	72,409.23	22,651.75
Equipment, etc., sold, scrapped or abandoned	514,438.13*	454,995.66*	59,442.47*
Total	$8,862,144.17	6,500,718.63	2,361,425.54

*Red Figures.

217 which indicated that the various companies for physical property have expended the gross sum of $9,376,582.30, and had charged off $514,438.13 for equipment, etc., sold, scrapped or abandoned, leaving in the capital account as it appeared on the books at that time the sum of $8,862,144.17 net. In regard thereto he reported as follows:—

"In regard to the method by which this preliminary table is obtained it may at once be admitted that the records do not actually show such a classification or the relative totals against the various designations as is above shown but in any attempt to compile this statement showing the additions to the property each year over such a long period as that now under review and at the same time classify these expenditures in order to determine their natural and relative importance only very general methods are available. On the other hand it is easy to show how the results were obtained."

He explained that the summary in Table F is compiled from the statements submitted in the Exhibits D and E. The latter show the net additions to plant and equipment each year classified in a general way so as to make the classification applicable throughout the whole period. In some instances, such as land and buildings the amounts may be traced directly to the books of the company, while in other classes, such as cable and pole lines the column represents a group of accounts. Where any accounts have been so grouped a subsidiary schedule is *is* given showing the several accounts embraced in the classification in question.

On reviewing the constituent charges to the different accounts over the whole period it was found, as was to be expected, that the distribution of expenditures was lacking somewhat in uniformity; so that a considerable amount of adjustment had to be made before presenting the results in final form. Even although some of the items thus transferred from one division into another might finally be eliminated as representing property not now owned by the company, it was deemed advisable to adhere strictly to the principle of adjustment so that each section might be a complete record of the property which it covered. The advantage accruing from such a method is too obvious to require comment. Some idea of the total amount involved may be obtained by reference to the summary of the additions and deductions recorded in Exhibit "F."

218 SANGSTER'S EXHIBIT "D."

United States Electric Lighting Company, September 30, 1902.

Assets.

Plant and Equipment	$2,081,959.75
Material and Supplies	45,189.41
Bills Receivable	54,467.85
Accounts and Miscellaneous Receivables	79,774.77
Cash	296,368.48
Total	$2,557,760.26

Liabilities.

Capital Stock	$1,097,600.00
Surplus	175,249.37
Funded Debt	650,000.00
Bills Payable	572,618.12
Accounts Payable	62,292.77
Total	$2,557,760.26

219 SANGSTER'S EXHIBIT "E."

United States Electric Lighting Company Plant and Franchises.

Cost of plant and equipment as per United States Electric Lighting Company balance sheet	$2,081,959.75
Add: Construction expenditures for year 1901 charged by United States Company to Surplus Account	279,465.79
Total Plant and Equipment	2,361,425.54
Cost of Plant and Franchises as per Potomac Electric Power Company books	4,338,576.17
Increase in Book Value	$1,977,150.63

220 The adjustments just referred to do not of course affect at all the final total of the cost of the property, and for this reason need not be further discussed. There is, however, another series of adjustments to be made by reason of the fact that certain losses arising from the sale or abandonment of property have not been properly recorded in the accounts of the company. Such losses have been offset to a certain extent by transactions of an opposite effect and these also have been duly recognized. In addition to these considerations some further modification must be made in respect of certain expenditures not directly connected with the cost of the physical property, such as expense of organization, special services, etc., all these will be enumerated in the next succeeding section.

This further adjustment spoken of by Mr. Sangster as being necessary to remove the lack of uniformity in the distribution of expenditures is shown in his Exhibit G as follows:

221 SANGSTER'S EXHIBIT "G."

Adjustment of Cost of Plant and Equipment.

Cost of Plant and Equipment as per Table F, page 9,		$8,862,144.17
Deductions:		
Property, rights, franchises, etc. of United States Electric Lighting Company of New York, included in Property Account of United States Electric Lighting Company (1882)		200,000.00
Extraordinary Expense, Bond Discount, etc., $773,710.07 less $292,865.81 apportioned to Cost of Potomac Light and Power Company Franchises 1896-1899)	$480,844.26	
Deduct: Salaries and Expenses of officers charged in accounts as "Installation Expense," regarded as directly applicable to Cost of Property	90,823.54	
		389,920.72
Services and Expenses in connection with Consolidated Mortgage, Contract for Power Supply, etc. (1903-1906)		10,651.41
Interest charged to Cable Account (1899)		2,962.65
Total Extraordinary Expenses, etc		603,534.78
Loss on equipment sold, scrapped or abandoned		430,971.44
Total Deductions		1,034,506.22
Additions:		
Equipment charged to Operating Expenses transferred to Plant and Equipment		42,017.59
Net Deductions		992,488.63
Cost of Plant and Equipment as Adjusted		$7,869,655.54

222 from which he deduced that by reason of his so-called "Intersectional Adjustments," in addition to changing the relative relations of the various property accounts to each other, he eliminated further, on account of equipment sold, scrapped, and abandoned, other property then standing on the books of the company to the amount of $430,971.44 and transferred to property accounts from

operating expenses the sum of $42,017.59, making a net deduction on that account of $388,953.85, the amounts shown in Line 7 and of which the commission subsequently restored the $244,668.10 shown in Column D, leaving still unaccounted for $144,285.75 shown in Colum- F.

The company has denied the propriety of eliminating any of the $388,953.95 from the property accounts. The commission has restored $244,668.10 of this item and the company contended did not point out the specific errors which would account for the remaining $144,285.75, and claimed that even if this property cannot now be located that it is the proper capital charge as a development cost.

In testifying as to these intersectional adjustments, Mr. Sangster, on page 357, speaking with special reference to an item of $74,571.58, said:

Chairman Kutz: Take up now the item of extraordinary expenses.

Mr. Sangster: These extraordinary expenses represent special services and legal expenses, referred to before in the body of the report. These are stated separately in the final summary. In other words, they are not lost sigh- of. Nothing is lost sight of in this report. It may be excluded from the category of property now owned by the company, but it is merely set aside and shown in the final summary or total result, on the balance sheet showing $11,500,000.

Mr. Barbour: Where do you find the detail of that item, $74,571.58?

Mr. Sangster: That is a peculiar item. The company itself had an account to which they charged certain amounts of money expended for special services of organization of the Potomac Electric Power Company and the purchase of the United States Electric Lighting Company. After the total amount of these expenses had been ascertained they took it up and spread it among the plant accounts on some basis of which I am ignorant. I do not know what basis they used to allocate this expense among the different specific plant accounts, like land, buildings, equipment, etc. Whatever they used this is the proportion charged to land. I am simply leaving it out of the land account, in order to consolidate it as it was originally in the books of the company, and have set it up separately in my final summary as it does not appear to have any direct relation to the cost of the property, that is, the physical cost.

223 Mr. Barbour: What I want to know is whether there is anything here in the way of reference to this report or reference to the books with which we can check the correctness of that item?

Mr. Sangster: Yes, sir, but we will have to make a digression.

If you will turn to page 11 of Volume 1 you will find the third item in that table, "Extraordinary expenses, bond discount, etc.," $773,710.07, less $292,855.81, which was not apportioned to any specific plant account, but was charged to another branch of the balance sheet account, or the cost of Potomac Light & Power Company franchises, leaving as a total amount spread among the specific plant accounts, $480,844.26. That can readily be identified in the ledger of the company, and is one of the items which makes up that total.

The detail of that item, together with several others, is given in Exhibit J, section 17. The first five items make up the detail that we were just considering on page 11. The total is $773,710.07.

Following, now, with Exhibit A, section 1, which we were considering, the final item is expenditure charged to real estate, land. Real estate included both land and buildings. This is the section referring to land. Excluded from the above summary and transferred to other sections.

Chairman Kutz: Tell the Commission to what account that was transferred.

Mr. Sangster: I can refer to no detail, in the report, Mr. Chairman, for the reason that when compiling the report I thought this would merely be an adjustment as between sections, having no final effect on the total, and that it would be unnecessary to give separate detail.

Chairman Kutz: Can you show that the deductions from certain items aggregate the addition of certain other items?

Mr. Sangster: I can. Exhibit G, section 17, in the second and third columns, you will see that the two totals are in agreement. Take the first item—land—and you will find it is $87,275.40, which is in accord with the figure given in Exhibit A of Section 1.

Chairman Kutz: Is there any further explanation that you would like to have with reference to Exhibit A, Section 1?

Mr. Barbour: I would like to be enlightened with regard to this. All this means is that you have deducted $87,275 from this account. Why it is deducted and what items go to make up the aggregate of $87,275, I am in total darkness about it. Is there anything here that would enlighten us on the subject?

Mr. Sangster: No; as I explained——

Mr. Barbour: Except that you have reasons, which you have explained, for deducting the item $87,275 from our book showing.

Chairman Kutz: But he adds it on to another place.

Commissioner Newman: Can you show to which item that is added?

Chairman Kutz: He shows a column of additions equal to the column of deductions.

224 Mr. Sangster: The correct expression is not "deduction", but "transfer".

Mr. Barbour: You have given us the benefit of it somewhere else?

Mr. Sangster: Yes.

Mr. Barbour: You have not deducted it from our account?

Mr. Sangster: No; it is not a final deduction; it is a mere transfer.

Mr. Barbour: But this total of $87,000 is taken from our books?

Mr. Sangster: Yes.

Commissioner Newman: As I understand it, with reference to any of these transfers, if it is desired, you can from their records, give the exact detail?

Mr. Sangster (interrupting): Yes. If they wish to know what items are included in this $87,000 I can produce the working sheets.

Mr. Barbour: I would like to know all the detail you can give us

showing where that item comes back to *ua*, and of what it is composed. You say that the working sheets will show that?

Mr. Sangster: I am ready to open up the working sheets. I believe that is the Chairman's desire.

Chairman Kutz: Which item do you refer to?

Mr. Barbour: The item of $87,275.40.

Chairman Kutz: You would like to know what part of your books that item was obtained from?

Mr. Barbour: Yes; where it came from, and where it is going back to.

Mr. Ham: I do not yet understand just what effect these transfers have upon the final result. I know Mr. Sangster must have had some reason for doing this; there must have been some benefit derived from doing all this work. I do not know what that benefit is.

Mr. Barbour: If it does not affect it I do not just see why all that work was done.

Mr. Ham: If you are satisfied that it does not affect the final result; when sufficient evidence or information is given to us to show that it does not affect the final result, of course we are no longer interested in it. I do not understand why there should be such an expenditure of time on this thing if it does not have any bearing on the subject under investigation.

Mr. Sangster: It does have a bearing on the proper classification of items, Mr. Ham. In other words, if there are in the land accounts certain expenditures that should properly be shown under buildings, and we are going to present a report to this Commission giving the total expenditures on buildings, then we have no alternative but to make the transfer adjustment in order that our building
225 section may be correct.

Mr. Syme: You have taken $87,000 off of their land account; have you put it back in the building account?

Chairman Kutz: There is $188,000 added to the building account, as you will see by Exhibit G, Section 17.

Mr. Barbour: Is this item of $87,275.40 buried in this item of $178,839.19, or included in it?

Mr. Sangster: No. I think I could make the matter clear if I referred to the previous exhibit, Exhibit F, the one just in front of that. You will see that $87,275.40 came from general depreciation. In other words, we found in the company's general depreciation account this sum which applied to land and which we transferred to land.

Chairman Kutz: In other words there was no depreciation in land? Is that the idea?

Mr. Sangster: In other words, a part of this depreciation account applied to land.

Commissioner Brownlow: You mean the value of land sold was placed in the depreciation account?

Mr. Sangster: For some reason or other—of course I cannot remember just the specific circumstances—the depreciation account credits included some items that referred to land and we therefore transferred it to land.

Mr. Ham: I would like to see that on the books.

Mr. Barbour: You have taken that from the land account here——

Mr. Sanbster: Yes.

Mr. Barbour: You said that would appear on Exhibit F; where is that?

Mr. Sangster: In the second column of Exhibit F.

Mr. Barbour: This is where you have taken it off the land (indicating)?

Mr. Sangster: That shows the deductions, yes.

Mr. Barbour: What have you given it to? You said you had added it somewhere else?

Chairman Kutz: If you will look on Exhibit G you will see that the total of additions equal the total of deductions in the intersectional adjustment.

Mr. Ham: I fail to see how we can reconcile our books with the figures of Mr. Sangster, simply showing that he has made a deduction of that kind, unless we know why it was made and where it went to. Of course, Mr. Sangster has offered to show us his working papers, but I do not see how we can have any more knowledge of it until we have examined the papers and gotten it into the evidence somewhere. My understanding of Mr. Sangster's explanation was that he made the adjustment so we could reconcile his figures with our books.

226 Mr. Sangster: That was the intention.

Mr. Ham: How can we reconcile our books with these figures if we do not know what has gone into these different additions and deductions?

Chairman Kutz: We will give you all the detail with reference to that, as I have said. I think it probably will not be necessary to go into detail except with one item, because the totals cannot be affected by the adjustment.

Mr. Ham: That is probably true.

Mr. Sangster: Is that sufficient with regard to land?

Mr. Barbour: The next is buildings, Setcion II, Exhibit A. I have itemized the various buildings owned by the Company and given a table of detail reporting the cost of each following this exhibit. The aggregate expenditure on buildings is found to be $773,278.88.

Mr. Barbour: That is the amount our books show?

Mr. Sangster: No; that is after adding in the sum of $178,339.19, which I have brought from other sections.

Chairman Kutz: In other words you have increased their book values by the amount of $178,000?

Mr. Sangster: If you will deduct that sum, which is of course shown here in red, you will get a book value of $594,939.69.

Mr. Barbour: Will your working sheets show of what that item of $178,339 is made?

Mr. Sangster: Yes, if you wish to consult those items, there is an observation that ought to be made in connection with this question. If we are going to be particular about items that have been set aside

in this record as relating to property not now in existence, we also must, in fairness, be aware of some items which have been passed up as more or less in doubt. There is some indication that they ought to be in the same category. At page 20 of the report I have said:

'It will be observed that some of the descriptions of the tables indicate that certain of the buildings have been reconstructed during the period under review. This applies to Power Station "B", and Power Station "A" included in Table 1, and the same is also true to a certain extent of the expenditures on substation buildings recorded in Table 2. Attention is directed to the case of substation No. 11, the only payment in regard to which is stated to be for remodeling the building. The original building, which is located at 13th and D streets, northeast, was constructed or purchased by the City & Suburban Railway Company in 1898-1899.'

If you will look at Table 1, Exhibit A, Section 2, Volume 1, you will find this item:

227 'Raising building one story and displacing roof, at 13th and B street, northwest', which was Station B. In other words there is duplication there to the extent of replacing the roof, which I have allowed to go in.

Chairman Kutz: In other words you allowed two roofs to go over that building?

Mr. Sangster: Yes, because I did not know the cost of the first roof.

Mr. Barbour: If you buy a one story building and it requires two stories for your purposes, you do not include the expense of putting another roof on as a part of the investment?

Mr. Sangster: There are two roofs on this building.

Mr. Barbour: The witness says it ought not to be allowed, as I understand him.

Mr. Sangster: The next is steam power equipment, Section 3, Exhibit A. This shows that the total expenditure amounted to $736,238.28. In order to arrive at the book figure we would have to add to this amount $201,742.60, representing the amount that remains in the account, but relating to equipment which has been sold, scrapped, or abandoned. The detail of this two hundred and one odd thousand dollars is given in table 4, that is, the detail of the principal items. Where the items comprise a large number of smaller units, supporting schedules are given which are referred to in the table.

Let me explain one or two items in that table. For instance, the first item is original installation of 17 boilers, including foundations, steam piping, fittings, and accessory equipment, amounting to $77,337.58. The company in its own records, credited, in respect to this property, $10,221.15. In addition to this it wrote off, and by "wrote off" I mean deducted as depreciation, $40,421.84 making a total which the company itself eliminated from its account, of $50,642.99, leaving still in the account remaining $26,694.59. The other items are of the same nature. The total amount still remaining in the accounts is brought out on page 3.

The detail of the first item, for instance, is given in schedule 51 in the volume of schedules, where I have enumerated the boilers and other apparatus included in this $77,337.68. While I have included this two hundred and one odd thousand dollars I have given as full detail as can conveniently be gotten into the limits of the report.

Mr. Barbour: Is that $201,742.60 restored anywhere else?

Mr. Sangster: No. It is stated separately in the final summary in report, on page 15. The total excluded is stated separately as $388,963.85, of which the $201,747.80 forms a part. In other words I have tried to show as clearly as possible just what items have been included in the category of plant excluded by reason of having been sold, scrapped or abandoned.

Mr. Barbour: Is there any table or any detail by which we can get a statement of all these items that go to make up this $388,963.85 excluded?

Mr. Sangster: Yes. Exhibit G, Section 17, columns 5 and 6 taken together, will make that amount net.

228 Mr. Barbour: Under the heading "plant sold, scrapped, etc."?

Mr. Sangster: Yes; and the next column "Transferred from operating expenses." The two combined will make up that net figure. All the other sections follow the same procedure. The method is precisely similar. First the total amount for property now in existence, to which may be added and deducted the transfers between sections, in order to properly classify the property, to which they may be added what I have found to apply to property which has since been sold, scrapped or abandoned, and lastly, if any part has been allocated to that division, whatever that proportion may be of expenses, the final amount will be this book figure——

Mr. Barbour: Mr. Sangster, still I have not been able to ascertain from what you have stated, or from anything so far disclosed by the record, just what items you have excluded and why you have excluded them. The Commission should have that information to be in a position to pass on whether or not you have exercised proper discretion in excluding those items.

Chairman Kutz: Will you specify any detail that you want, Mr. Barbour:

Mr. Barbour: It applies to all of them, as I understand it.

Chairman Kutz: You refer to the item $201,000?

Mr. Barbour: Yes, the items on page 15. He stated that in Schedule G of Section 17 we should find the items going in make up the item of $388,000 odd, equipment sold, scrapped or abandoned, less amount charged to operations. Of course he has exercised his discretion in reference to these items that go to make up that amount, but he has not stated any facts that controlled his discretion, so that the Commission, with whom the decision must finally rest, can determine whether or not he had done that properly. Without that the Commission cannot pass intelligently on the question whether or not it should be excluded.

Chairman Kutz: Let us go into the detail of it. Let us take the

item of steam plant account, Section 3, Exhibit A, Volume 1. There is the item of $201,742.60. Is that the item about which you wish to get the detail?

Mr. Barbour: Mr. Chairman, I would like to have it as to any of them.

Mr. Sangster: That particular figure takes us back to table 4 of that section, referring to the first item again.

Chairman Kutz: That item has been explained. Is there anything in addition to that?

Mr. Sangster: That has been set aside for the reason that the records show that the property was sold.

Chairman Kutz: What is the next item that goes to make up that large item?

Mr. Sangster: The books record the sale of a small vertical engine, $15.

229 Mr. Barbour: The first item is the original installation of 17 boilers including foundations, steam piping, fittings, and accessory equipment, $77,337.58. You have excluded that?

Chairman Kutz: I would like to have Mr. Sangster repeat his explanation as to the detail of that.

Mr. Sangster: The reason that this item of $77,000 is excluded is because the record shows this property to have been sold, and the proceeds of the sale were $10,221.15.

Chairman Kutz: I recall that.

Mr. Sangster: Take the next item, one small vertical engine. The records show that to have been sold in 1897, the salvage being $15. The company added to that, for depreciation, $35. In other words, they estimated that that particular engine had cost the company $50. I could not identify or locate that engine, and, strictly speaking, I ought to have deducted that $50 from property which I say in my final summary is now in existence; but, there being an element of doubt, I simply show it in here as a deduction from the amount eliminated from the accounts.

In other words, the $201,000 is not the gross amount that should have been deducted, but is the amount left after offsetting it by this $50 in addition to items of the same nature both in this section and throughout the other sections.

The next item is "running six inch steam pipe from the boilers to Green engine and taking down old pipe, $252.25. * * * I cannot recall at this moment the specific reason for eliminating every particular item shown here. I can give you one reason, which looks to be the proper one, if you will turn to schedule 63.

Chairman Kutz: If you can get the exact reason we will pass it over and take it up later. Let us consider the next item, $205.58.

Mr. Sangster: That was for removing and resetting the National Boiler in the old plant. * * * Under proper accounting principles that ought to have been charged to maintenance and repairs.

The next item is "taking down one of the large water tanks at P street and hauling to power station "B" and there installing in boiler room for feed water in connection with pipe line, $62.77.

The circumstances there are the same as in the previous item. The

expenditure should have been charged to maintenance and repairs. He eliminated all such items.

The next is "1 Webster Star vacuum feed water heater, purifier and filter, two feed pumps, four oil pumps, and material and labor, $2,754.59". The company wrote off $1,854.49. Here is a case where the company itself had ascertained the actual cost of that water heater and they eliminated its total cost from the books. Therefore, the amount remaining in the account is zero.

Here is a case where we were following out the same principle that has been adopted throughout. "Installation of 8 450
230 H. P. Babcock & Wilcox boilers, 4 in 1902, 2 in 1903, and 2 in 1905". These were sold and the company does not write off the total amount leaving in the account, $27,974.32.

The next is "carbon dioxide recorder, $489.98". That was sold for $445, leaving $44.98 in the account, which ought to be eliminated.

The next item is one 6 by 12 Blake simplex pump, which was sold for $90. The company wrote off $60 in addition, making the total amount of credit $150. The accountant could not locate the purchase of this pump, and on the same principle under which we treated the vertical engine and water meter referred to before, we credited $150 to that amount we were eliminating.

The next item is a Worthington brass fitted pressure pattern water pump, including valves, flanges, etc., $1,522.54. This was sold for $540.00. The company in addition, writing off $982.54 making up the total actual original cost of that pump, namely $1,522.54. The remaining amount in the account was zero. There was nothing to write off.

You will notice that we are listing here all of the property that comes into this classification whether there is anything remaining in the accounts or not.

231 If you take these totals they represent the original investment. The second column shows the amount received for the sale of property; the third column shows the amount which the company estimated they were short of the original cost, in an endeavor, I assume, to eliminate the original cost from their accounts.

The same is true of engines. There were 22 engines installed in 1884-1893. These were sold for $14,685.04. There was also written off in addition $34,524.81, leaving in the accounts $12,290.18.

Mr. Barbour: You have written that off.

Mr. Sangster: Yes. Here is a small item for belting, $3.98. We could not locate that item.

Mr. Barbour: You need not bother about that.

Mr. Sangster: It was the principle involved, Mr. Barbour, not the amount.

Mr. Barbour: How do you mean you could not locate it?

Mr. Sangster: We had to assume that that belting had some relation to the 22 engines in 1901. We have $639.27 charged for setting up high speed engines, including h. p. generators, steam piping, and so forth. These high speed engines are the 22 engines

that were referred to in the first item under engines, and therefore that item goes the way of the engines.

Mr. Barbour: You refer to the item of original installation of 22 engines, high speed engines bought in 1884 to 1893. Why should they just be setting them up in 1901?

Mr. Sangster: I will have to correct that statement. That is a matter I will have to look into.

The next item is "cleaning basement and repairing condensers, $242.76." I would have to defer an explanation of that.

The same applies to the next item, setting up three high speed engines, including foundations and piping, $694.28. (See pages 791-792.)

Installing one 30 gallon accumulator for use in connection with 2,000 kw. turbine, installed in 1904, at a cost of $2,178.41. That was sold for $400. The depreciation written off was $1,100, making a total of $1,500, and there was consequently remaining in the accounts $678.41.

Mr. Barbour: You have the heading "Proceeds of sale (estimated or actual)." Are those your estimates, or are those what the books show?

Mr. Sangster: What the books show to be estimated or actual. In general, wherever we had the records to guide us as to the sale of property we of course identified that property and placed it against the sale and allowance for depreciation resulting from the sale. In the other cases where there are no items given in the second, third and fourth columns, I am unable of course to give an estimation at this present time.

Mr. Barbour: That applies to what?

232 Mr. Sangster: That applies to power station A. You can see from the content that smoke preventing devices on seven boilers in 1903 would necessarily be eliminated because the boilers themselves had been sold in 1896-1899. The same applies to the water sprays under grates of the seven boilers. We had this advantage, that we were not isolated in any one particular year. We had the whole history of plant installation from time to time. We would (398) know that the company installed seven boilers at a particular date and that smoke preventing devices had been installed on those seven boilers; also that water sprays under the grates had been installed, so that whatever became of the boilers would necessarily govern what should be done with the accessory equipment. (That merely because the company had sold the boilers he thought it followed that they had sold these other devices which were bought separately. This is a conclusion on his part. He does not know it to be true.)

Mr. Barbour: You did not find that out from the books? There was nothing in the books to indicate that?

Mr. Sangster: That, I am not prepared to say. Those are the general lines that I adopted in arriving at this total of $201,742.60, which was eliminated from the steam power equipment.

Mr. Syme: I will offer in evidence the report submitted by Mr. Sangster, which he has testified generally in his examination are

correct, according to the best of his information and belief. Is that true, Mr. Sangster?

Mr. Sangster: Yes.

Mr. Barbour: We object to the introduction of these books because they are not sufficiently established in the evidence; because the reason for the elimination of these different items which have been eliminated from the books as shown, are not established by the evidence of this witness, and because the statute does not contemplate that there shall be eliminations in this particular inquiry, as to the cost or the money expended in the construction and equipment of the utilities.

The reports offered are the reports contained in Volume I to III, marked Potomac Electric Power Company, being reports of July 1, 1914, as marked on the back of the book.

Chairman Kutz: The objection is overruled and the report will be admitted in evidence.

An exception was taken to the ruling and the further examination of this witness was continued and resumed on July 4, 1916.

In schedule 3, volume I, section A (page 62) there is an item eliminated from the total of $124,279.03, extraordinary expenses, etc., eliminated from the cost. I wish you would explain how that item is made up and why it is eliminated.

Mr. Sangster: The item is part of a total of $773,710.07 referred to on page 15 of the report, being the amount of organization etc., expenses of the Potomac Electric Power Company, 1897 to 1899, which was distributed among the plant accounts in the books of the company by the company. I have, as it were, withdrawn this distribution from the specific plant accounts in the ledger in order to shew it in detail in this final summary on page 15. It has no direct relation to physical costs. That is the reason for its withdrawal from specific plant accounts. Exhibit A of Section 4 shows
233 that the total amount (Volume I, page 87) of money expended on electric power equipment, as found in this accounting report, is $1,146,717 even, and the total, as shown by the books of the company, is $1,480,005.34. The difference is made up of four items, the first being the amount remaining in the accounts, which relates to plant sold, scrapped or abandoned, which I have eliminated. The amount is $140,287.95 detail of which will be found in table 18 of this section. The red ink items in the table mean credit and mean predominance of credit for sales of property the cost of which we were unable to identify. Those arose very largely on account of changing units from one plant to another: probably purchases for one plant later transferred to another plant, and finally sold.

Mr. Barbour: I see in this summary, under the heading of general original cost, you have $500, and in the summary you have $2,091.83 under proceeds of sale (page 138); and a depreciation of $278.60.

Mr. Sangster: Yes.

Mr. Barbour: Do you mean property that cost the company $500 has been sold for $2,091?

Mr. Sangster: No sir; that is a case where we simply had a collection of general items which is an aggregate of miscellaneous items that we could not place in any one of the power stations or substations. Proceeding with the table proper,* the first item is $133,685.38, original installation of the electric plant of the United States Electric Lighting Company. Their main station was power station B. This expenditure covered the period from 1883 to 1897. This plant was sold for $31,707.70. The United States Company, in addition, wrote off for depreciation, $67,332.84. They were still short of actual cost $34,644.84, which is accordingly the amount remaining in the accounts and eliminated on the principle that I have adopted in this report. In almost all cases, depreciation was written off at the time the property was sold. Depreciation followed the entry for the sale of the property in almost every case. There may have been lapses of short periods of some months when the matter of considering the depreciation would be deferred to the close of the financial year.

The next item is for two Western Electric 75 k. w. dynamos with rhe-stats, $1,559.40. They were sold for $491.82, leaving $1,067.58 remaining in the accounts.

The next item is "installing two one million c. m. cables for breakdown service from No. 6 railway engine to low tension switchboard for Christmas load, $464.21. They were sold for $357.78, leaving $106.43 in the accounts of the company.

The next item is "moving switchboard and changing cables" $1,188.69. This item is not properly chargeable to plant and was accordingly eliminated.

Mr. Barbour: How do you know that, Mr. Sangster?

Mr. Sangster: The description is "moving switchboard and changing cable." Moves and changes are items which ought to be charged to maintenance.

Mr. Barbour: Is that all you bases that conclusion on ?

Mr. Sangster: Very largely, yes.

234 Chairman Kutz: Why do you say, "ought to be"?

Mr. Sangster: I think this amount is erroneously charged to plant for the reason that if a unit is moved from one position to another, and the cost of moving is charged to plant, that item ought not to be considered as correctly charged, but is more in the nature of a change which does not add to the value of the plant or to the original cost of the plant. This is an opinion in accord with the generally established principles of accounting.

Mr. Ham: Would you not have to know the facts in connection with this change before being sure of that conclusion?

Mr. Sangster: I think the facts are as stated in the descriptive item here. When we come to a very large item, Mr. Ham, there are cases where the moving is attended with some additional expendi-

*Vol. 1, page 140.

ture—perhaps some improvement is made at the time of the moving from one location to another, and in that case I have not eliminated the amount, but have stated it separately. I refer you to page 14 of the report. You will find there an item of $32,076.67 for moving or changing apparatus. Here we have such a question involved, and accordingly I have not entirely excluded the amount, but simply stated it as a separate item in the total amount of money expended on plant and equipment now in existence. Under the practice of the Interstate Commerce Commission moving and changing apparatus is not specifically referred to in their classification of accounts, but the general principle for recording of items in plant accounts shows that such items as this are not contemplated as a part of plant expenditure.

When asked if he could refer to any regulation governing the matter, he said

Mr. Sangster: I thought I just explained that there is no specific language. These adjustments are made entirely on my own experience in accounting work and in dealing with items of this nature.

Mr. Barbour: You gave no weight to the fact that the accountant who originally entered that under this head might have had more intimate knowledge of conditions existing than you had?

Mr. Sangster: I did not forget that possibility.

Mr. Barbour: But you gave it no weight in coming to your conclusion and eliminating it?

He had nothing to base his discretion upon except the bare language of the entry "moving switchboard and changing cable," and because that was the language used he eliminated it in accordance with his general ruling and that this principle runs through his report of all small items, and the same principle applies to the next item, $2,521.18, for rewinding series arc machines.

Chairman Kutz: Would that be properly chargeable to plant and equipment under any circumstances?

Mr. Sangster: It conceivably might, yes. If the company got the machine for nothing and rewound it themselves we might allow that expenditure, but repairs to defects are not properly chargeable to plant account; and this item is not quite in the same class with "moving switchboard and changing cables". (His conclusion is based merely upon the language of the entry.) We have
235 to presume that the items of expenditure are properly described in the record.

Mr. Barbour: Why did you not adopt*ed* the other presumption, that more important one, that they are correctly entered in the proper account, when the company was keeping the accounts for this very purpose of showing their capital investment. In the absence of evidence to the contrary why didn't you assume that the entry was properly made and the accountant used exactly the language you have stated to justify the entry?

Mr. Sangster: I think the language used is to be given main attention.

The next item is "1 M. P. 400 and 450 generator with switch and

rheostat, $4,766.37." This was sold for $1,397.25. The company wrote off for depreciation $502.75. This left $2,866.37 remaining in the accounts.

The next item is $863.57, for setting up 6 Edison B. P. generators and necessary steam piping, foundations, and so forth. I am unable to recall, at the present moment, the reason for the exclusion of that item, and I have marked it. I am having an assistant look up the items that were marked on yesterday afternoon as requiring explanation. Under Power station A the first item is for installation of electric plant, $74,374.28. The purchase and sale are identified in schedules 35 and 35-A. The amount remaining in the accounts of the company is $71,651.72.

The next item is "moving booster from Riverdale," $333.90. That is not a proper charge to plant account.

Mr. Barbour: Why not?

Mr. Sangster: For the same reason I gave for the other item, merely the language of the entry.

Chairman Kutz: Might it not be properly chargeable to plant account under any circumstances of installation or change?

Mr. Sangster: I cannot conceive of any circumstance that, in my opinion, would make it properly chargeable to plant account.

Mr. Barbour: Could you not imagine that such a change would add to the efficiency of the apparatus?

Mr. Sangster: Adding to efficiency does not add to cost.

Mr. Ham: Might it not increase the value of the property?

Mr. Sangster: When I speak of adding to cost I include adding to value. I say I cannot conceive how it could increase the cost.

Mr. Ham: But it did increase the cost by $94.99. You have eliminated that from the account on the theory that it did not bring about any increase in value.

Mr. Sangster: I do not consider that the item of $94.99 increases the cost of the switchboard. I am not considering the question of whether it may or may not increase efficiency. Probably the change was made for that very purpose, so far as I know. We are not considering that question.

Now we come to the question of substations. I think it would obviate the necessity of taking these expenditures out of that
236 item if I explain that we found in the files of the power company an inventory of the substation apparatus existing on June 30, 1914. We assumed that that inventory was correct and used it as our basis for ascertaining the apparatus in substations which was in existance at the time of valuation. All itsms not enumerated in that inventory were placed in this list of expenditures for equipment sold, scrapped or abandoned.

Mr. Barbour: That is Section 4, table 18?

Mr. Sangster: Yes, from page 2 on. (Vol. 1, page 142). Those figures are based entirely on this inventory of June 1, 1914. Everything that was on the books and not in that inventory were eliminated which is reproduced in these tables in Vol. 2, section 4.

Chairman Kutz: I do not believe I quite understand the theory

on which the item of $6,962.61 is eliminated. The first item on page 2? (Vol. 1, page 142.)

Mr. Sangster: That refers to rotaries, switchboards and so forth, original installation in substation 1. We could not trace those machines, or the switchboards to the inventory that I have just spoken of, and hence we have relegated them to this list. But the books of the company show this amount in plant account pertaning to that substation, in addition to the cost of the other items in that substation.

He was able to identify other items on the books covering the cost of the items in that substation. There were very few exceptions where he did not identify in the books the units shown in that inventory. He undertook to identify the rotaries in that station. He didn't do it personally but it was done by an assistant engineer of the Commission. He could not identify those rotaries because they were not there. They were not shown in the inventory but were shown by the entries in the books. He eliminated everything from the books that did not appear on the inventory and found the inventory amongst the records of some of the substations. That was the situation. He had the assistance of an engineer of the Commission who visited the various substations and informed him that these various pieces of apparatus would not be found in any of the substations. All of the apparatus in the substations is labeled with a specific number. The manufacturer, before he ships a rotary, a converter, or transformer, puts a specific number on that machine which may be referred to. If you will turn to the appendix to the tables, Volume II, you will find the apparatus described in the various contracts. The shipping bill issued by the manufacturer contains the contract, under which the apparatus has been purchased. It also places against each machine or panel a specific number—I thnk the technical name is "serial number" which is given to the machine as its own individual label. By this means we are able to compare all of the purchases found in the records of the company. If we could not locate the number purchased in the inventory our engineer assistant, from his data and notes, was able to inform us whether the machine was or was not in use or in existence.

Chairman Kutz: Taking the items under substation No. 2. Why is that first item there included under those items to be eliminated? (Vol. 1, page 142.)

Mr. Sangster: We could not identify the switchboard in the first item.

Chairman Kutz: But might it not have applied to switchboards that were still in existance at the station?

Mr. Sangster: Our conclusion was that it did not.

237 Chairman Kutz: Or that it applied to some switchboards that had been installed prior to the present installation?

Mr. Sangster: To the best of our knowledge, this was the condition.

Mr. Barbour: What was the fact upon which you based your objection?

Mr. Sangster: On the fact that we could not identify the switchboards in the substation.

Mr. Barbour: Not that it wasn't there, but that you could not identify the particular switchboard referred to?

Mr. Sangster: No. We had identified the other switchboard, but we could not identify the ones referred to in this entry.

Chairman Kutz: Did you identfy any charges for installation of present switchboards, other than these items?

Mr. Sangster: I cannot recall the particular switchboards at the present moment. The date probably had some bearing on the matter.

Mr. Barbour: The entry is merely "installation of switchboards and so forth." That stood out as a separate item and you concluded that this charge was not made in connection with the installation of switchboards and so forth?

Mr. Sangster: No sir.

Chairman Kutz: Now about the next item, "general construction"? Is that eliminated on negative grounds or on the positive grounds, that it does not pertain to present installation? ($6,962.61.)

Mr. Sangster: I cannot recall the circumstances with regard to that particular item at this moment. Probably the date had something to do with it. I will mark it for investigation.

Mr. Barbour: You would not expect to find an item of general construction entered on the inventory, the inventory being taken June 30, 1914?

Mr. Sangster: No, not an item of general construction in an inventory. The company had no separate capital account; they kept separate cards for the various purchases for different substations, but there are no accounts in the books of the company. The job cards for purchases for the various substations goes back to about 1906 but does not cover the whole period.

Chairman Kutz: How do you know what the total plant account was pertaining to substation No. 1, if the company did not keep a plant account for the different substations separately. It is not clear how you got this item of $6,902.81, if there was no separate plant account for each substation.

Mr. Sangster: I want to stick as nearly as possible to the facts, and I will have to refresh my recollection on that point.

Chairman Kutz: Very well, you may do that.

238 Mr. Sangster: The next item is $2,694.02, purporting to be for a dynamo, etc., purchased for substation No. 3. I could not identify this apparatus in the inventory.

The same applies to the expenditure of $11,934.18 for the installation of storage batteries in substation No. 5.

Chairman Kutz: In other words the storage batteries do not appear from the inventory of June 30, 1914?

Mr. Sangster: They do not.

Chairman Kutz: How do you know the item was in the plant equipment account of the company? Did you know it by reason of the fact that the storage batteries had been purchased and not charged off?

Mr. Sangster: We discovered from the year 1897 to 1901 a total expenditure of this $11,934.18 described in connection with the installation of storage batteries. In some way the accountant was able to locate this expenditure as coming from substation No. 5. On referring to the company's inventory we could not identify the storage batteries and the engineer assistant reported that they were not in existence.

Chairman Kutz: Might it not have been possible for the company to have transferred those storage batteries to some other building and will have them as a part of its equipment?

Mr. Sangster: We had that in mind and made our examination irrespective of location at any particular substation.

The next item is $855.83, moving rotary, etc., 1897, 1901. This was eliminated on the theory that merely moving rotaries should not be charged to plant, as already explained.

The next three items refer to sales of rotaries and scrapped cable, which we have placed in this group of expenditures as a deduction because we could not identify the original purchase on the books of the company.

Mr. Ham: Just for my information, why is it that they could not be identified? Is it through lack of information recorded at the time of sale or at the time of purchase?

Mr. Sangster: I do not know just how to answer that question.

Chairman Kutz: Take it in this way. What is the first step in getting at this item? What did you discover concerning the three 150 k. w. g. e. rotaries and transformers with switchboards? Did you discover the purchase of them?

Mr. Sangster: Taking the substation expenditures as one whole group, these were all analyzed and listed; the purchase of different apparatus, so far as it was described in the record, was listed. Now and again we would strike a great number of small items and we would not feel that we would be justified in taking the time necessary to analyze them and we simply allowed those expenditures to go in in general. That is probably the reason why we could not identify some of the smaller items here, such as $204.38, Fort Wayne rotary. The $7,494.38, for three rotaries, we simply could not locate among the items which we had listed as shown by the record.

Chairman Kutz: But you did have evidence that they had been sold?

Mr. Sangster: Yes, sir. It may be that the purchases were referred to or described in a different way. They may not have been called "rotaries" but they were given some other name. An engineer may have located the purchase, but so far as we could tell,
239 from the description in the record, we could not locate these particular purchases.

Mr. Barbour: Coming back to Colonel Kutz'- question as to the first thing that caused you to make an investigation with regard to that item, you found this item of $7,494.74 as sales reported?

Mr. Sangster: The first time I struck it it was sales.

Mr. Barbour: But you could not trace it back to the purc*ahse*?

Mr. Sangster: No.

Mr. Ham: Then how do you know when it was installed?

Mr. Sangster: I do not know.

Mr. Ham: You have the date there when it was installed, from 1897 to 1901.

Mr. Sangster: We have a note there, at the end of the table, Note 1, which states that the original installation of each of these units has not been traced for the reason that no corresponding specific charges can be found for the respective stations or substations. In that way, one would assume that the date given is the date of sale. We have the date of installation in the column.

Chairman Kutz: Then you don't know the date of sale any closer than it took place between 1897 and 1901, or can you give us the exact date of sale?

Mr. Sangster: I can give you the date of sale of each of the different items making up those sales.

Mr. Barbour: Is there any detail of this account to show how that item is made up?

Mr. Sangster: No.

The next two items in page 3 (volume 1, page 144) in substation No. 6 refers also to sales where we could not identify the installation of the units. Substation 7 is a similar item. Substation 8, "moving plates from Riverdale substation and installing same in new tanks and preparing building for same and new batteries, $10,058.91. The detail of that is given in schedule 38.

Chairman Kutz: Explain more fully why that item should be eliminated, in your judgment.

Mr. Sangster: The detailed schedule shows that the item is made up of battery plates, less allowance for tanks and plates not furnished; erecting girders to support floor; charges for miscellaneous material, general labor and labor by company employes.

Mr. Ham: You have eliminated that item. I would like you to state just why you have eliminated it, and what brought you to that conclusion?

Mr. Sangster: The item itself is described as expenditures for moving property from one location to another; but you will also observe that the description includes the installation and operation of new tanks and preparing building for same, and new battery.

240 Mr. Ham: Yes.

Mr. Sangster: For that reason, I am not prepared to state, at the present moment, why this item has been eliminated.

Mr. Ham: You would need additional information?

Mr. Sangster: Yes. The batteries may not be now in existance. (See page 793-4) There is a booster set installed in 1900 which could not be identified in the inventory. There is an item of $30.95, removing motor from power station A to substation 15 which has been included on the theory that moving charges are not proper charges to plant.

Chairman Kutz: The storage battery is the first item in substation 15.

Mr. Sangster: We have just dealt with that, Mr. Chairman, in schedule 37.

Chairman Kutz: No, you were dealing with the other item in Schedule 38, substation No. 8. Substation 15 is schedule 37.

Mr. Sangster: Yes.

Chairman Kutz: You wish further information pertaining to what item?

Mr. Sangster: The $10,058.91. I shall have to make the same reservation with respect to the item in Substation 15, Schedule 37. (see page 794)

The item was Storage Battery Original cost		$30,237.58
Proceeds of Sale	$2,288.39	
Depreciation	26,580.61	
		28,869.00
Amount remaining in accounts		$1,368.58

Chairman Kutz: That evidently indicates a sale there, doesn't it, charged to depreciation?

Mr. Sangster: Yes. The proceeds of sale of this apparatus was $2,288.39. The company wrote off, in addition, $26,580.61, leaving a small balance of $1,368.58 remaining in that account.

Chairman Kutz: Can you tell from memory, or, if not, I wish you would look it up and advise the Commission, how you identify this storage battery, originally purchased in 1899 for $30,000, with the one which was sold for $2,288.39?

Mr. Sangster: I should have to produce that from the working sheets.

Mr. Barbour: In getting that, I wish you would get the date of the purchase, as well as of the sale.

Chairman Kutz: The date of purchase is given as 1899.

Mr. Sangster: In those cases, where the item refers to sale only, the date is the date of sale.

Chairman Kutz: So, this is the date of installation now?

Mr. Sangster: Yes sir.

241 Proceeding with the next item, the generator set in Substation No. 16 (volume 1, page 446) sold for $3,474.75. The purchase of this generator could not be identified in the records. The sale has been included in this statement of eliminations.

Now, the next item: Academy of Music Substation; moving storage battery from Power Station "B", $4,372.21. Why is that not a proper charge to plant equipment?

Mr. Sangster: I have taken the position that charges for moving a plant from one position to another is not an appropriate charge to plant, because it does not increase the cost of the apparatus.

Chairman Kutz: If you were installing it in your substation the cost of moving the apparatus from the freight station to the substation would be a proper part of the cost of the station, would it not?

Mr. Sangster: Oh, yes, without question; unless you have it installed in your substation you cannot claim that bringing it from that substation increases the cost of the machinery or unit, because

on that theory the more you shift it around, the more valuable it will become.

Mr. Ham: Doesn't it occur to you that $4,372.21 is a large expense for simply moving a thing from one location to another?

Mr. Sangster: In storage batteries the expenditure is usually large. It is often accompanied with renewal of plates.

Mr. Ham: It might not include an increase in the capacity of the battery?

Mr. Sangster: Yes, it might in some cases.

Mr. Ham: Do you know whether it did in this particular case?

Mr. Sangster: No. When we come to a large item, such as the one I mentioned on page 15 of the report, we have allowed the cost of moving to remain in the accounts.

Mr. Barbour: How do you differentiate between the two?

Mr. Sangster: Mostly on account of the amount involved. If it is large, we allow it to stand.

Commissioner Newman: Do you mean by that, Mr. Sangster, that if the amount is large you will allow it to stand because there is an indication that there was an addition to plant?

Mr. Sangster: That there were additional expenditures which made up the increased cost, over and above the cost of moving.

Chairman Kutz: Would not that be a reasonable assumption with respect to this item we now have under consideration?

Mr. Sangster: I do not think it so, no. Where you are engaged in a large piece of work, rearranging plant, it very often is accompanied, as far as I can ascertain, with additional expenditures; but in merely moving a unit from one station to another, it does not as a usual rule carry with it additional expenditures increasing the amount of plant resulting from the change.

242 The witness cannot say how much this storage battery was and bases his entire conclusion on the word "moving" being in the title of that account, and adds the description of the item has an important bearing on its treatment in this report, but is not the sole element taken into consideration, but he cannot say as to all of the considerations which were brought to bear in each particular item; that he would look up that particular item and *illuminate* it in the future.

243 *Line 7, Subsection V.*

Mr. Sangster: Turning to Section V, I find that the total expenditure on turbo-generator equipment at Benning Power Station is $770,290.03. The book accounts show only $656,970.72. The difference arises on account of a transfer from electric power equipment to turbo-generator equipment of $113,418.27 in arriving at that previous total of $770,000 odd.

Chairman Kutz: Then, the amount actually eliminated in the account is only $98.96?

Mr. Sangster: Yes, sir. The detail of that item is given in Table 2, always giving what detail is possible. You will notice that in this table quite a considerable amount of expenditure was eliminated by

the company from its plant accounts in respect of steam turbines installed in Power Station "B", subsequently removed to Benning Power Station, and finally sold.

In the case of those large units, it was a relatively simple matter to ascertain the original cost, so that the company could determine readily the amount written off for depreciation resulting from the sale of apparatus. The $98.96 in particular applies to a sum expended on the installation of a 5,000 steam turbine, not completed. In other words, there were some minor expenditures on a steam turbine which it was proposed to install, but this purpose was never carried out. There were some expenditures in preparation for the installation.

Witness thinks this should be charged to operating expense.

Mr. Ham: The plant was not operating?

Mr. Sangster: No, sir.

Mr. Ham: Well, do you think that an expenditure of $98.96 in connection with the construction of a plant that was not operating in 1906 should be charged to operating expenses?

Mr. Sangster: I think that the $98.96 expended in connection with a proposed installation, which was never carried out, ought to be charged to operating expenses.

Mr. Ham: And you followed that theory throughout?

Mr. Sangster: If there were any other cases of a similar nature, that theory would be applied. This is his best judgment. If the turbine had been installed, the expenditure would have stood.

He makes the difference because he considers that the expenditure was of no avail eventually. It was more in the nature of an experiment.

Chairman Kutz: Suppose the company had intended to install a turbine, and after the work on the foundation had progressed to a certain degree found that somebody had blundered, and the foundation would have to be moved a foot or two and the work theretofore done thrown away; would the cost of that work which had to be thrown away be eliminated from plant equipment account, or would it be included?

Mr. Sangster: Strictly speaking, it ought to be eliminated; but I would allow it, on the ground that it could not be definitely ascertained. I would allow it to go in with the general expenditures on the whole work.

244 The item of $113,418.27 was merely transferred from electric power equipment. It serves to increase the amount as shown by the books for turbo generator equipment and decreases the amount shown by the books for electric power equipment

245 *Line 7, Subsection VI.*

Miscellaneous Power Plant Equipment, Total Cost		$37,448.45
Other apparatus	$33,401.84	
" material and contract labor	3,622.08	
Common Labor	524.53	
		37,448.45
against a recorded book cost of		28,554.80

151

Mr. Sangster: The difference is made up of three items: $4,472.81 for property sold, scrapped or abandoned; $318.16 for extraordinary expenses, part of that general larger item which was stated separately; and inter-sectional adjustments amounted to $13,684.62, brought into this section from other sections, and sesequently to be deducted in reconciling with the final book figure.

Chairman Kutz: Now, take up the detail of the three items.

Mr. Sangster: The detail of the first item is given in Table 7. These are largely items of miscellaneous nature, being classified in miscellaneous power plant equipment.

Chairman Kutz: What are the grounds for eliminating the first item?

Mr. Sangster: The first item refers to $5,912.00, for belting, shafting and other miscellaneous equipment in the United States Electric Lighting Plant. That belting and shafting has now been dismantled and has been, consequently, eliminated from the accounts. You can get the details in Table 1, 2, 3, 4, 5 and 6 of the items included in Miscellaneous Power Plant Equipment. The other items are mostly red ink and form a deduction from the item I have just read and one or two others, the net being $4,472.81, as given in the exhibit.

Mr. Barbour: These red ink items here are sales, made up of property, probably comprised in this general statement of shafting, belting and other miscellaneous equipment which could not be identified; is that the idea?

Mr. Sangster: That may be the case. That is a possibility, but I cannot state.

246 *Line 7, Subsection VII.*

Poles and Overhead Lines.

Shows the total expenditure to have been $257,466.68; the book shows $271,630.74.

The difference arises on account of a transfer from other sections of $33,486.78, against which, however, I have eliminated $47,505.20 for plant dismantled, sold or scrapped. $145.64 applies to an old item of extraordinary expenses, which is stated separately.

You will notice that there is no detail supporting this elimination of $7,505.20. In this particular case, which is peculiar among those we have considered heretofore, the elimination rests, I am frank to say, on a matter of presumption. So far as can be ascertained from the circumstances surrounding the installation of poles and overhead system generally, this item of $47,000 ought to be eliminated. I base that conclusion on this fact: Let me refer you, first, to Exhibit F of Section XVII. If you will look at the first column on the seventh line, you will find that overhead lines and poles was increased by me to the extent of $54,651.66 for items transferred from other sections. The main element in this transfer will be found in the last but one column, "Property Account of U. S. El. Co., $48,308.98." This transfer was made for the

reason that the United States Electric Lighting Company, in its early records, did not keep any account for poles and overhead lines. We analyzed the property account with the same diligence that we applied to any of the others, and found that $48,000 applied to poles and overhead lines.

This, then, was the expenditure, roughly speaking, from 1883 down to 1899, or, more strictly speaking, the close of 1898, when the company opened an account for poles and overhead lines.

In 1898, the United States Electric Lighting Company was required to place all its overhead lines underground, and for that reason I have assumed that the expenditures down to that date should be eliminated because of that requirement.

Chairman Kutz: Do you know whether the lines were put underground in compliance with that requirement of law?

Mr. Sangster: The records show the expenditure of a considerable amount of money for removing overhead lines and placing them underground.

Mr. Barbour: You think that is an item that should not be carried in capital account any longer where, pursuant to an act of Congress, existent work is made worthless and you pursue another course involving other expenditures. Do you think that ceases to be an investment in capital?

Mr. Sangster: That is a question I am not prepared to answer, because I do not think it comes within the scope of this accounting work. I think this accounting is to ascertain the amount of money spent on plant now in existance.

Chairman Kutz: If those poles were removed pursuant to act of Congress, they then became obsolescent property?

Mr. Sangster: Yes, sir.

The Commission, however, restored the entire amount of $47,505.20 to this account making further evidence bearing on it unnecessary.

247 *Line 7, Subsection VIII.*

Underground Conduit.

Mr. Sangster: The exhibit shows a total expenditure of $1,223,986.61, while the books total $1,283,419.09 for underground construction. The difference is reconciled in three items. I have increased the book cost by $27,393.68 for expenditures which the company charged to operating expenses, but which I think should more properly be included in plant. The extraordinary expenses item accounts for $87,429.46. Intersectional adjustment means a further increase of $603.30.

In this section nothing was eliminated for any construction work which may not be now in existance.

Chairman Kutz: On the contrary, you increased the amount by $27,000 and odd.

248 *Line 7, Subsection IX.*

Underground Cable (Vol. 1, Page 188).

Mr. Sangster: Secton IX, Underground Cable: We find the total expenditure on underground cable to be $1,428,976.47. The book figure showed $1,583,986.71.

The difference is made up of the amount eliminated for property now in existence, $24,618.35. Extraordinary expenses amount to $122,959.29. I transferred to other divisions $7,432.60. The amount eliminatel from the underground cable rests on the same treatment as was accorded to the elimination on the poles and overhead lines.

Chairman Kutz: What evidence did you have to support that elimination?

Mr. Sangster: The same general evidence which we considered in connection with our treatment of the amount which was eliminnated from the poles and overhead lines.

Chairman Kutz: The two cases are hardly comparable, are they? This is underground cable; the other was eliminated in connection with the placing of overhead wires underground.

Mr. Sangster: Let me explain there that in the early years the company simply kept one account, "Cable"; and in these early years the cable referred to overhead lines. Later on, as the underground system was installed and enlarged, the company began to record its expenditures for different kinds of cable in proper accounts.

Chairman Kutz: Then, this item really refers to overhead, rather than underground, cable?

Mr. Sangster: Yes, sir.

Chairman Kutz: Explain the red ink item of $9,064.13.

Mr. Sangster: In 1899, the John A. Roebling Sons Company settled some account by agreeing that it would hold a certain amount of cable installed to account of a bill which they had rendered against the company.

Chairman Kutz: I do not quite understand that.

Mr. Sangster: In general terms, it was an allowance by the Roebling Company for cable which had been returned by the Potomac Electric Power Company which they have eliminated. We could not identify that particular purchase of cable; so we just allowed it as a general offset to the total cable account.

Chairman Kutz: In other words you gave the company credit for it on the assumption that it was a proper charge?

Mr. Sangster: No. I allowed the deduction to stand. It was merely an allowance by a manufacturer in settlement for a purchase made by the power company. I can look it up for you.

Mr. Barbour: We would like to have the data about that.

249 *Line 7, Subsection X.*

Street and Park Lighting.

Mr. Sangster: The Street and Park Lighting System totals $76,002.08 in the amount of money expended, as found in this accounting report.

In order to get the book figure, we would have to add to that figure $19,200.58 for poles and cross-arms and other material sold or scrapped; also $9,642.40 for items which I have transferred to other sections.

The Commission restored to the Plant Account this item of $19,200.58. On page 456 he said:

The detail of the amount eliminated from this account is not given in the report. It is merely a difference between the total which we find under the description (A), total street and park lighting system, and the company's book figure $104,845.06.

Chairman Kutz: On what do you base the deduction?

Mr. Sangster: This deduction is merely a difference. The total street and park lighting system as given in the final amount is constructed from the detail given above, so many poles, including cross-arms, mast-arms, cable, etc., so many lamp fixtures and fittings, so much interior conduit and resurfacing. The balance we have eliminated.

Chairman Kutz: Where do you get the items making up the total of $76,002.08?

Mr. Sangster: The exact source of our information I will have to look into further. My recollection is that we had the assistance of the electrical department of the District here.

Mr. Ham: Might I ask whether the items listed there which constitute $76,002.08, include all of the different kinds of items that are included in the total of $104,845.06?

Mr. Sangster: They do not include all the items in this $104,845.06 as shown by the books. That amount of money is made up by a great mass of different items, year by year. We have ascertained our amount of money expended separately.

Mr. Ham: You did not get this from the books, then?

Mr. Sangster: I am going to explain just how we got these 863 poles and the unit price that was used in extending the total of $18,637.15.

Mr. Ham: The only other point in making the inquiry along those lines is this: This street and park lighting system as carried on our books might include items of a different nature from those which you have listed. If you have by any chance omitted any of those, it would tend to destroy the significance of the figure of $19,200.58.

Chairman Kutz: Mr. Sangster is going to get the details and will furnish them.

250 Mr. Sangster: I think that in that case it would be well to submit all the working sheets, Mr. Chairman.

Mr. Ham: At this point I wish to call attention to the necessity of our knowing now the details of the so-called inter-sectional adjustments. When the matter came up yesterday, it was not apparent how this would have any effect upon the final result; but here it shows very clearly that it does have an effect upon the final result, because the fact of this $9,642.40 being correct or not makes a difference in the amount between the book account and the figure of the existing property as he (the witness) determines it.

Chairman Kutz: There is no question, I think, about the identity of the items making up this $9,642.40.

Mr. Ham: I think there is grave doubt.

Mr. Sangster: It does not affect the final result in the least. If you will turn to Exhibit F, Section XVII, you will find that this amount taken out of street and park lighting system has gone into several other accounts.

Chairman Kutz: The question at issue is as to the nineteen thousand odd item.

Mr. Barbour: Yes. You get at that by taking the difference between the original cost——

Mr. Sangster (interposing): Mr. Ham was speaking of the next item. He says that it was not apparent yesterday that an inter-sectional adjustment had any effect upon the final result. Now it appears to him, from this item here, that it does. If you will turn to Section XVII, Exhibit F, you will find that all this $9,642.40 has been included in some other account or several other accounts. There is no doubt, of course, that it was taken out of street and park lighting, but it has been placed in several other divisions.

Mr. Ham: Yes; but it does have a direct bearing upon the correctness of the amount you have eliminated from our capital account. If this figure of $9,642.40 is correct and your figure of $76,002.08 is correct, then your figure of $19,200.58 is correct?

Mr. Sangster: Yes.

Mr. Ham: Your elimination is correct if these other two figures are correct.

Chairman Kutz: We will reverse the process and establish the ground on which the nineteen thousand dollar elimination was made, if that can be established satisfactorily, the rest will follow, I take it.

Mr. Ham: It may.

Mr. Sangster: I would like to explain just what Mr. Ham had in mind. The correctness of the $19,200 is entirely dependent on the correctness of the $76,000. These two items are inter-dependent. If the one is correct, the other is; if the one is incorrect, the other is. The $9,642 is not involved at all. * * * In other words, the books show $104,800, speaking in round figures, as the amount charged to street and park lighting. Analyzing the expenditures, we find that $9,642 is applicable to some division or divisions. So that we may regard it this way; that the books would show something like $95,000 as the expenditure on street and park
251 lighting. $76,000 of that $95,000 I have regarded as good, and $19,000 I have eliminated as belonging to property not now in existance.

As already stated the Commission subsequently restored the whole $19,200.58.

252 *Line 7, Subsection XI.*

Transformers.

Mr. Sangster: In bringing out the total line transformers and devices amount, $133,435.17, I will refer you to the note, Table 1, as follows:

"The Company kept an inventory of line transformers, commencing December 31, 1906, which has been adopted as the basis for the above figures (the figures in this table). This inventory shows the number of transformers in service at the end of *year* year. The prices applied to the inventory quantities were obtained from the transformers account in the accounting system of the Company. The prices adopted as of December 31, 1906, are the averages computed from the period from 1899 to 1906. The annual increases for the period from January 1, 1907, to June 30, 1914, are given in Schedule "2". With certain exceptions therein noted, the prices applied in each year are the averages obtained from the accounting records."

By "averages", I mean averages for each year. By this method, I think, we have got as closely as possible to the actual original cost of the transformers.

Chairman Kutz: In this case you increased the amount over the book value as shown by the company's book about $11,000?

Mr. Sangster: No, sir; by $7,500. We have, indeed, transferred from other sections $3,760; but that, I take it, does not finally increase the amount of money expended.

Chairman Kutz: Explain the item of $7,504.32.

Mr. Sangster: The estimated cost is shown as $132,371.87, and the book value on the basis of the company's records is only $124,867.55. I have, therefore, increased the transformer account by $7,504.32. I am speaking from a carbon copy, Mr. Chairman. Sometimes I may not get the exact figures.

Chairman Kutz: Then you deduct $490.99 for materials sold, scrapped or abandoned?

Mr. Sangster: The detail of that is in Table II. They are minor items.

Chairman Kutz: The black ink items in Table II are, in your judgment, items that are not properly chargeable to plant and equipment under a proper system of accounting?

Mr. Sangster: Well, strictly speaking, these expenditures apply to a date so remote that the property is not now in existence,, or else, as you state, the item is, in our opinion, not properly chargeable to capital for reasons which we are prepared to submit if the company desires.

Mr. Barbour: That is what we want—the reasons.

Mr. Sangster: Do you wish to have me submit them?

Mr. Barbour: Yes.

253 *Line 7, Subsection XII.*

Mr. Sangster:

Services	$387,434.10
The book value is	375,238.37

The difference is reconciled by taking into account an item of $12,513.76, transferred from other sections, and eliminating $318.03 for extraordinary expenses. In other words, there is no deduction for items eliminated in services.

254 *Line 7, Subsection XIII.*

Meters.

Mr. Sangster: Exhibit A shows that we find the total amount expended for electric meters in service and in stock to be $292,248.17. (Report page 207).

In this case also we used an inventory record of the company; the final result being that we increased the book value by $2,673.16.

Chairman Kutz: What does that item represent?

Mr. Sangster: Merely a difference. We have ascertained the total amount expended on meters by using an inventory of the company and applying average prices obtained from the records of the company so far back as will exhaust the number of meters in the inventory.

Chairman Kutz: That shows that the plant account, as far as meters are concerned, is too low, and you have increased it.

255 *Line 7, Subsection XIV.*

Arc and Incandescent Lamps and Electric Signs.

Mr. Sangster: Arc and Incandescent lamps and electric signs we find to amount to $50,367.23, using again and inventory of the company and prices obtained from the records.

On this basis we find that the book value is overstated $37,307.24. We have also separated out $21.91 for extraordinary expenses. We have transferred from other sections $45,611.69. Some cases, therefore, result in finding an overstatement; and in other cases an understatement.

Chairman Kutz: This inventory, as I understand, is one that was made by the company?

Mr. Sangster: Yes, sir, and shown in their records.

Mr. Ham: The costs do not purport to be exact costs, do they?

Mr. Sangster: No, sir; they are based on these average prices, used with a view to get as near the actual cost as we could approximate.

Mr. Ham: Would not the records of the company have been better to take the total cost as it was shown on the books of the company, rather than wiping out $37,000 of capital?

Mr. Sangster: Yes, sir, if we were sure that the books of the company represented property now in existance.

Mr. Ham: Well, do you think you are justified in taking a price which you admit is not a cost price and, at the same time, reducing the amount by $37,000?

Mr. Sangster: I understood your previous question in regard to price to mean the total amount. We have used actual unit prices obtained from the cost records.

Mr. Ham: Not actual cost during the period in which they were bought, but simply an arbitrary price based upon just a recent period?

Mr. Sangster: There are no arbitrary prices in the company's records. They are all actual.

Mr. Ham: You have applied an average price—which I call an arbitrary price—based upon the accounting records for the year 1913 and six months ending June 30, 1914, notwithstanding the fact that many of these lamps were bought years before that, when prices may have been higher or lower.

Mr. Sangster: Oh yes; that is quite correct.

Chairman Kutz: If the price assumed is, in the opinion of the company, too low, we will be very glad to have some evidence in support of the statement.

Mr. Barbour: I think the books themselves are evidence of that fact.

Commissioner Newman: Put them in.

Mr. Barbour: I thought he had examined them.

256 Mr. Sangster: I am prepared to show all the detailed sheets. We can get down to the question of the last detail.

Mr. Ham: The point is very largely the one that I raised yesterday; that it is recognized that it is practically impossible to ascertain the original cost of existing property in any going concern. Now, this is simply an illustration of the impossibility. I do not believe Mr. Sangster or any living man can determine the original cost of our existing arc lamps.

Chairman Kutz: Certainly not. Lamps are purchased at different times, at various prices.

Mr. Ham: Therefore, I think that it is highly improper that we should have eliminated from our book accounts, or from our accounts, $37,307.24.

Chairman Kutz: The number of lamps is taken from the company's inventory. The prices assumed by the accountant, are taken from the company's records. If any evidence is presented to the Commission showing that the inventory is incorrect and that the price assumed is too low, the Commission will consider it.

Mr. Ham: I do not think the burden is on us. You are assuming to eliminate certain items because of the fact that those items are not now in our property account.

Mr. Sangster: That is why I am prepared to submit the detailed sheets showing the actual prices paid over a period of years.

Chairman Kutz: I think we will have that introduced at some subsequent session.

257 *Line 7, Subsection XV.*

General Equipment.

Mr. Sangster: Totals $59,932.28. We have eliminated $15,029.67 as not now in existance.

On the other hand, we have increased the book figure by very nearly the same amount, namely, $14,893.91, which has been charged to operating expenses.

We have stated separately, as in the other divisions, the extraordinary expenses, which in this division amount to $10,651.41.

The intersectional adjustment in this division meant an addition of $2,266.62. The detail of the amount eliminated is given in Table VII. These various items eliminated are listed in Table VII. They comprise mostly wagons and runabouts and trucks.

Chairman Kutz: They are, really, made up of four items?

Mr. Sangster: Automobiles, $4,970.70, and other equipment, $10,058.97, totaling $15,029.67.

Chairman Kutz: Take the first four items. They are eliminated on what ground?

Mr. Sangster: The first four items, runabout, phæton, batteries and another runabout, were eliminated for the reason that we could find no trace of these items in an inventory which we obtained of general equipment.

Chairman Kutz: An inventory made by the company?

Mr. Sangster: Yes, sir.

Chairman Kutz: Take the other equipment, taking each item in detail.

Mr. Sangster: The next item is "1905, one Columbia runabout," purchased for $600, sold for——

Chairman Kutz (interposing): No; not those items. Those do not enter into it. I mean the items on page 2. The other items on page one do not affect the total.

Mr. Sangster: No. The company eliminated the entire amount themselves.

The second group refers largely to horses and wagons and bicycles, tools and implements, furniture and fixtures, and other items in the earlier periods. These are eliminated, with the exception of testing apparatus, tools, implements and bicycles, on the ground that we could not identify the items in the inventory. That inventory did not include everything that we have in this general inventory. They are such as tools, implements, apparatus and bicycles. We decided that the time necessary to go into this matter would not be justified, and kept this in mind when we made our allowance for materials and supplies. You will remember that "materials and sup-

plies" was fixed at an amount in excess of any amount shown by the books of the company.

Chairman Kutz: The items eliminated for that reason aggregate about $5,000. There are three items with the suffix "1" in parenthesis.

Mr. Sangster: Between four and five thousand dollars, yes, sir—four thousand five hundred dollars.

Chairman Kutz: Horses and wagons, furniture and fixtures are eliminated on the ground that they are non-existant?

Mr. Sangster: Yes, sir.

258 Chairman Kutz: What is the item of equipment in consumer's premises, $664.67?

Mr. Sangster: I do not know just what particular equipment this would be in consumer's premises, which at one time the company owned. I could look into the particular item.

Chairman Kutz: It may be well to throw a little additional light on that one item. The credit item, "beams, girders, etc."?

Mr. Sangster: Refers to sale of property which we could not identify in the purchases according to the records.

Chairman Kutz: It was allowed as a credit item?

Mr. Sangster: Yes, sir.

Chairman Kutz: I want to get the statement showing the elimination of final allowances.

Mr. Sangster: Page 15.

Chairman Kutz: On page 14, take the item of $32,000 the second item in the table. How is that made up?

Mr. Sangster: The item is $32,076.67, cost of plant and equipment, including moving and changing apparatus.

259 Mr. Sangster: You turn to Section IV, Exhibit A. The fifth column will give you a summary of the items entering into that amount. (Volume 1, page 87.)

Chairman Kutz: The details of which have been covered by the explanation which you have been making, yesterday and today?

Mr. Sangster: No, sir; the details are in the various tables covering property now in existance. This is not eliminated from their accounts. You will notice that it is included in the total electric power equipment—in the total amount of money expended for electric power equipment.

Chairman Kutz: Well, why was it not eliminated from electric power equipment?

Mr. Sangster: Because the circumstances attending the change in the moving of the apparatus pointed to the fact that there were additional expenditures included in these amounts. For the reason that we could not determine how much applied to additional property, or how much to changing, we allowed the total amount to stand.

Mr. Barbour: In these instances were the entries merely entered as "moving"?

Mr. Sangster: I can refer to the specific items. It is difficult to say, offhand, just what each case represented.

Mr. Barbour: For instance, that large item of $27,307?

Mr. Sangster: You have the description "storage battery, including cost of moving."

Mr. Barbour: What table do we get that in?

Mr. Sangster: Table III. An analysis of the expenditures shows that out of the $73,000 on the whole job, $27,000 applied to the moving, or at least involved the moving operations.

Mr. Barbour: Because the entry was made that way, "storage battery, including moving," you allowed it?

Mr. Sangster: Yes, sir.

Chairman Kutz: The assumption being that that was a proper charge to equipment?

Mr. Sangster: The assumption being, rather, that there are some other expenditures over and above the cost of moving in this $27,000.

Mr. Barbour: You charged that at the time of the original installation?

Mr. Sangster: It was an original installation in Substation No. 1 but it had previously been in the Academy of Music.

260 *Lines* 4, 12, 13, 14, 15, 17, 18, 19, *and* 29.

Chairman Kutz: I want to ask you about the third item—engineering and -uperintendence—$95,000. Why is that separately stated and what relation, if any, does it bear to equipment? (Report, page 14.)

Mr. Sangster: Engineering and superintendence, together with the next item, interest, and the following item, executive salaries, special services, etc., are all stated separately for the reason that they constitute overhead charges, and these overhead charges are not fully represented in the books of the company. That is to say, the full complement of overhead expense, in my opinion, is not present in the $7,869,655.54, which is the first item on the table that we have referred to on page 14, and represents the amount expended on plant and equipment. Pardon me—it is the last item on that page, $7,869,000.

Chairman Kutz: Where did you get those items? From the books of the company?

Mr. Sangster: Yes, sir. If you will turn to page 13 you will find a table showing in which divisions those various expenditures occur. For example, engineering and superintendence is almost entirely included in buildings, $95,060 of $95,600 is in building: $576.50 is in section 10—general and miscellaneous expenditures.

Turning to interest, $399.45, in the next column of the same table on page 13, you will find that all of that amount is in section 1—land. That is interest on notes for the purchase of land.

Chairman Kutz: Do I understand that this item, engineering and superintendence, was not entered by the company as a part of the plant and equipment account, but in your judgment it should be so included—?

Mr. Sangster: No, sir, not exactly. It was included by the company in its plant account. In order to assist the Commission in dealing with the question of the element of overhead charges, I

have separated out all overhead charges which the company have shown in their plant account so that you may know the amount which the company has charged, and, as I have attempted to explain, that is, in my opinion, incomplete. It has not been uniformly charged throughout the whole record.

Chairman Kutz: Does that represent the sum of all the charges for engineering and superintendence which you found in the plant and equipment account?

Mr. Sangster: Yes, sir. The same principle has been followed in dealing with interest and executive salaries and special services. These, I take it, are essentially overhead charges.

Commissioner Newman: In your report, Mr. Sangster, do you charge them to any capital account?

Mr. Sangster: Yes, sir. The engineering and superintendence is distributed between buildings and general and miscellaneous expenditures. Interest is in land. Executive salaries and special services is in the general and miscellaneous expenditures.

Commissioner Newman: Does your report recommend that any of those figures be eliminated?

Mr. Sangster: No. There is no recommendation that they should be eliminated. There is, I think, a clear statement that the final amount which I have found for the expenditures on plant and equipment is $7,869,000-odd, and that this amount includes a certain proportion of overhead charges which I think it well that the Commission should be informed as to the exact amount, so far as it could be determined from the books of the company, in order that it may deal with this question when it comes to consider it.

261 Mr. Barbour: You would expect, in the accounting of an enterprise of this kind, to find similar items under all these various other charges, but the company has not entered any such items?

Mr. Sangster: The company charged them all, executive salaries all to a general and miscellaneous division of the account.

Mr. Barbour: But they are proper capital charges, you think?

Mr. Sangster: I think that a certain allowance should be made for overhead charges.

Chairman Kutz: You do not mean to say that all executive salaries are a proper charge to capital account, or that all engineering and superintendence is a proper charge to capital account?

Mr. Sangster: No, sir; not all of the engineering and superintendence.

Mr. Barbour: This does not represent all that they have spent on each one of those accounts, but represents that proportion which they have allocated on that account on their books.

Mr. Sangster: That is right.

Mr. Barbour: To get at a just statement of the capital account there are certain other proportions of these three items that you would allocate under these headings for these overheads, is not that so?

Mr. Sangster: I will not say what actual distribution should be

made of the company's engineering and superintendence and interest charges, but I do say it would be proper to make some reasonable allowance for overhead charges over and above this figure of $7,649,576.81, which I find to be the amount expended in construction and equipment and the property now in existence, exclusive of overhead charges.

262 *Line VI.*

Chairman Kutz: The next item, at the top of page 15, is a summation of the detailed statements that you have made today and yesterday?

Mr. Sangster: That is the summation of all the items in the different sections shown in Exhibit A of each of these different sections, and described as the difference between the original cost and amounts subsequently eliminated from accounts with respect to equipment sold, scrapped or abandoned. You will find that the summation is given in Exhibit G of section 17.

The statement here referred to is as follows:

(*I.*) *Final Analysis of Plant and Equipment Account (Continued).*

Brought forward		$7,869,655.54
Loss on Equipment sold, scrapped or abandoned, less amount charged to Operations		388,953.85
Property, Rights, Franchises, etc., of United States Electric Lighting Company of New York (1882)		200,000.00
Franchises, etc., of Potomac Light and Power Company (1896)		208,189.50
Franchises, etc., of United States Electric Lighting Company (1902)		1,977,150.63
Organization, etc., Expenses of Potomac Electric Power Company (1897–1899):		
Services obtaining loan from United States Mortgage and Trust Company and securing contract for power for Eckington and Soldiers Home Railway, paid in Capital Stock	$550,000.00	
Discount and Commission on issue of $650,000.00 Bonds	109,750.00	
Interest and discount on notes, etc.	14,543.63	
Legal Expenses	8,492.90	
Installation Expense	90,923.54	
Total Organization, etc., Expenses	773,710.07	
Less: Installation Expense included in Plant and Equipment	90,923.54	
		682,786.53

Settlement of Interest on $650,000.00 5% Bonds—Washington Railway and Electric Company (10,903)		132,500.00
Discount on $280,000.00, 4½% Bonds—Washington Railway and Electric Company (1903)		56,323.56
Services and Expenses in connection with		
Consolidated Mortgage, Contract for Power Supply, etc. (1903–1906):		
Engraving Bonds	$8,500.00	
Audit of Accounts, January 1, 1901, to April 30, 1904	1,123.85	
Legal Expenses	1,027.56	
		10,651.41
Sundry Interest charged to Cable Account (1899)		2,962.65
Total		$11,529,173.67

Some further particulars relative to the Organization and Financing Expenses are submitted in Exhibit "J" of Section XVII, and its supporting Schedules.

Chairman Kutz: The total there corresponding to the total in the first item on page 15?

263 Mr. Sangster: Yes. The total on page 15 will be got by combining the 5th and 6th columns in that exhibit, the net figure, $430,971.44 for plant is not now in existence, but charged to the plant account, less $42,017.59 for plant items charged to operating expenses, being $388,953.85.

264 *Lines 8 and 9.*

Mr. Sangster: The next item is $200,000 paid for property, rights, franchises, etc., of the old United States Electric Lighting Company of New York, in 1882. If you will refer to page 11 you will find that I deducted that amount from the additions of the United States Electric Lighting Company. Hence I have restated it separately in the final analysis of the plant and equipment account of the Potomac Company.

I might further explain for the information of the company that this $200,000 forms part of a sum of $228,137.65, being the first item in the second column of Exhibit E of section 17. You will see it in the property account. That $200,000 is in there, Mr. Ham.

Mr. Ham: Did that include the cost of any physical property?

Mr. Sangster: Probably it did. The description here is property, rights and franchises.

265 *Line* 10.

Mr. Sangster: The next item is $208,189.50 for franchises, etc., Potomac Electric Power Company acquired in 1896. The method of determining that amount is given on page 6 of the report. That sum, $255,000, was paid the Light & Power Company in notes and cash for their property, rights and franchises. Subsequently, in incorporating this transaction on the books, the Potomac Electric Power Company separate several items which referred to physical property. These items amounted, in the aggregate, to $46,810.50, leaving for franchises $208,189.50.

Mr. Ham: That is a conclusion on your part?

Mr. Sangster: Yes, sir.

Mr. Barbour: Can you state the facts upon which the conclusion is based?

Mr. Sangster: These facts I have just recited, the purchase for $255,000 in notes and cash, of the property, rights and franchises, less what the company showed that that purchase included for physical property. These are the facts.

The Commission, however, restored all three of these items on Lines 8, 9, and 10, so further citation of the evidence to sustain that is unnecessary.

266 *Line* 11.

The next item is $1,977,150.63, representing franchises and so forth of the United States Electric Lighting Company acquired in 1902. This figure is worked out on page 7 of the report. If you will refer to the figure at the foot of page 6 and the balance sheet of the United States Electric Lighting Company, you will find that that company stated that its plant and equipment, according to the balance sheet, had a book value of $2,081,959.75. After the purchase the Potomac Electric Power Company found that a sum, $279,465.79, had been spent by the old United States Company in addition to plant, but was reported in the minutes to have been charged to operation. The Potomac Company added that figure to the United States figure, bringing out $2,361,425.54.

Mr. Ham: Did I understand you to say the Potomac Company did that?

Mr. Sangster: Yes, sir; charged it to plant. To be quite specific, they might not have added it to this figure. The Potomac Company charged the $279,000 to plant. That clears up the question. On the completion of the transaction, the Potomac Electric Power Company, having purchased the United States Electric Lighting Company for $3,250,000 of stock, the plant account of the Potomac Electric Power Company was charged with $4,338,576.17, making an increase, if we compare the book value of the same plant in the two companies, of $1,907,150.63, which item I have described on page 15 as presumably referring to the franchises of that company, seeing that it represented no physical property.

Mr. Barbour: It represented everything that they had gotten from the United States Electric Lighting Company, did it not?

Mr. Sangster: I will not say what it represents. So far as I can see, there is an increase in the plant account of the Potomac Electric Power Company over the United States Electric Lighting Company book value of the same plant account.

Mr. Barbour: Did they not carry into the books of the Potomac Company the book cost of this property to the Potomac Company. Was not that the way it was done?

Mr. Stangster: No, sir. They issued $3,250,000 worth of stock in payment of the plant and franchises of the United States Electric Lighting Company, then they adjusted this $3,250,000 for the other assets and liabilities taken over from the old United States Company, and spread these assets and liabilities on their own books. That left a difference unaccounted for of this $4,338,576.17 which they simply charged to plant. This was done when the properties were consolidated; September 30, 1902, and added to the book value $1,977,000, when comparing the book value of the plant of the United States Electric Lighting Company with the amount charged to the plant by the Potomac Electric Power Company for the purchase of the same plant" which Mr. Sangster assumes represents the value of the franchise of the Potomac Electric Power Company was required to pay in stock for the acquisition of that property and it was charged to plant.

Being asked if it was not a conclusion of his own that the Potomac Electric Power Company only paid $1,977,000-odd for the franchises and that nothing was found in the records of the company that would bear out that conclusion, Mr. Sangster replied:

I find, as I have explained, that on comparing book value of the plant of the United States Electric Lighting Company, as shown on its own balance sheet, with what the Potomac Electric Power Company placed on its account for the purchase of that property, a difference of $1,977,000. The date of the balance sheet
267 of the Potomac Electric Power Company was September 30, 1902, and if you will turn to Exhibit C of section 17 you will find in the fourth column that $4,059,110.38 was placed on the books September 30, 1902. Some time between that date and December 31 of the same year there was added this $279,465.79, which I have already explained the United States Company had charged to operations. These two make up your total of $4,338,576.17. But the date of the balance sheet of the United States Company and the date of the entering of the four million odd dollars as the book value of the plant in the Potomac Company were the same, September 30, 1902.

Mr. Barbour: Mr. Sangster, I want to ask you if this is not so: The Potomac Electric Power Company paid $3,250,000 in stock for that property.

Mr. Sangster: That is so.

Mr. Barbour: And in addition assumed obligations of the United States Electric Lighting Company for $300,000?

Mr. Sangster: No, sir.

Mr. Barbour: Of bonds, isn't that true, together with $350,000 of certificate of indebtedness, and $651,967.37 of floating debt, which made a total of $4,551,967.37, against which the United States Electric Lighting Company turned over to the Potomac Company assets amounting to $492,856.99.

Mr. Sangster: I am unable to corroborate, but of course in addition to the payment of $3,250,000 which the Potomac Electric Power Company made in stock, they assumed certain floating liabilities and, conversely, of course, received all the property, fixed, permanent and current assets of the United States Electric Lighting Company.

Mr. Barbour: Then there was not just an arbitrary increase of book values to the extent that you have indicated in your response a little while ago, when you stated that there was an increase in book values of $1,977,150.63.

Mr. Sangster: Yes, sir; there was an arbitrary increase in book value.

Chairman Kutz: For plant and equipment?

Mr. Sangster: Yes, sir.

Mr. Barbour: Didn't that property cost the Potomac Electric Power Company, according to its books at that time, a net of $4,059,110.38?

Mr. Sangster: If you measure it in the stock issued, I would say yes.

Mr. Barbour: And did it not later develop that there were, in addition to these other obligations outstanding which they assumed, additional items amounting to $279,465.79, for which the Potomac Company had subsequently to provide?

Mr. Sangster: The real explanation of that was, Mr. Barbour, that they thought they were receiving for their $3,250,000 certain property which included cash of $279,000-odd. They found, after they got it, that there was no such amount in their cash deposits, but that it had been paid by the United States Electric Lighting Company as a dividend to its stockholders, on the strength that it represented plant which had been paid out of operations, and it therefore reduced the earning capacity of the United States Electric Lighting Company. For that reason they apparently decided that there was due to their stockholders the extra dividend, and had lifted this cash deposit which appeared in the balance sheet of the United States Electric Lighting Company as a cash deposit,
268 and distributed that amount among the stockholders. Naturally when the Potomac Electric Power Company were aware of the situation, they capitalized this $279,000, in addition to what it had already placed on the books as the cost of the plant of the United States Electric Lighting Company.

Mr. Barbour: Is not that a mere assumption on your part?

Mr. Sangster: No, sir. You will find that these are the facts, as taken from the record.

The witness said he "could not now refer to the minutes" but "you will find that that information is taken from the minutes. It is no imagination."

Mr. Barbour: Did not the property of the United States Electric Company actually cost the Potomac Electric Power Company $4,338,576.17?

Mr. Sangster: In stock, yes, sir.

269 *Lines* 12, 13, 14, 15, *and* 17.

Mr. Sangster: These comprise services paid for by the Potomac Electric Power Company for obtaining loan from the United States Mortgage & Trust Company, and securing contract for power for the Eckington and Soldiers' Home Railway, paid on capital stock, $550,000; (line 12); discount and commission on issue of $650,000 of bonds amounting to $109,750 (part of line 15, the balance of which is made up of the item Discount on $280,000 4½% bonds Washington Railway & Electric Company, 1903, $56,323.66 shown in Schedule 17, Exhibit J); Interest and Discount on notes, etc., amounting to $14,543.63 (line 17); some legal expenses, $8,492.90 (line 13), and what was designated in the records as installation expense, $90,923.54, all go to make up a total of $773,710.07, which the company originally charged to a special account in its ledger and subsequently distributed among the specific plant accounts. This statement on page 15 is the gathering together again of the distribution of that total and stating it as it was originally.

Of these items, the Commission subsequently restored all except the item of $550,000, the item of $14,543.63, and the $90,923.54 being included in the item of executive salaries, line 5, the item of $109,750 being included in the item shown in line 15 together with the item of $56,323.56 hereinafter mentioned, and the item of $10,651.41 restored in line 14, and therefore it is unnecessary to discuss further any evidence bearing on them.

270 *Lines* 17, 18, 19, *and* 31.

Mr. Sangster: The next item is $132,500 paid the Washington Railway & Electric Company in 1903 in settlement of interest on $650,000 of five per cent bonds. The details of this item are given in schedule 22 of section 17.

The Commission dealt with these three items:

Interest on Notes (line 17)	$14,543.63
Interest on $650,000 original 5 per cent bonds of Potomac Electric Power Company (line 18)	132,500.00
Interest on cable account (line 19)	2,962.65
Interest During Construction, not carried on the books, but estimated (line 31)	253,052.75

After excluding all overhead charges not shown upon the books upon the ground that they had not been charged to capital but had been paid through operations, says on page 34, "In the light of this discussion, it is concluded that, except as to interest during construction as noted below, no allowance should be made for overhead

charges over and above the amount which the company has included in construction costs;" and then proceeds:

"Several items in the nature of interest are to be found in the accountant's summary of the company's plant account, which may be set forth as follows:

Interest on not-s, etc.	$14,543.63
Interest on $650,000 original 5 per cent bonds of Potomac Electric Power Co.	132,500.00
Interest charged to cable account	2,962.65
Total	$150,006.28

Some doubt might immediately arise as to whether interest on bonds and notes are to be considered under this head, but it need only be remarked that charges for interest during the period prior to operation usually take the practical form of interest on borrowed money, which may be found apportioned wholly or partly to cost of construction in the accounts of the company. In this case there is the further fact that the principal item represents interest for a period of over four years on the original bonds, issued by the present company, but, on the other hand, there is an entire absence of any provisions for carrying charges on the funds obtained for the construction of the Benning power plant, not to mention the expense which must necessarily have been incurred by the older company.

Owing to the piece meal method by which a considerable part of the extensions to the plant has been constructed, it is certain that there would not be occasion for systematic borrowing at every step. Much of the smaller extensions would be financed by funds available from surplus earnings; nevertheless, it is not denied that the funds for the greater part of the construction work could only be obtained by borrowing from outside sources.

To make an allowance for this claim it is necessary to determine the average period of time which would elapse before the property could be brought to the point of producing revenue. The company claims that eight months would be a fair estimate for this purpose, which, at the rate of 6 per cent, would produce an equivalent of 4 per cent on all construction. It is well known that in the case of power-station equipment most of the apparatus is purchased
271 under contract, the final payments being withheld until the apparatus is in effective operation. About one-third of the plant, reckoned on money expended, is therefore installed under circumstances which tend to show that, with proper engineering foresight, the company would not be called upon to pay for its equipment in installments on the average more than six months at most before producing revenue. Land and buildings, representing an investment of slightly over $1,000,000, would, of course, cover a longer period. But the distribution system, including services, transformers, meters, etc., which constitutes the remainder of the investment, would probably cover a much shorter period, owing to the gradual rate of growth of this part of the plant. If this reasoning is correct,

it would appear that an allowance of 3 per cent, or a total of $240,000, on an investment of approximately $8,000,000, would be fair and reasonable. Therefore, this amount, $240,000, is carried forward to Table II.

272 *Line* 15.

Mr. Sangster: The next item is for discount on $280,000 of four and a half per cent bonds, Washington Railway & Electric Company, in 1903; $56,323.56. This is the item which, with the $109,000, above mentioned, makes up the total of $166,073.50 restored by the Commission in Line 15.

At the conclusion of the direct examination of Mr. Sangster, motion was made to exclude the three volumes accompanying the report of Mr. Sangster as a part of his testimony, and in addition to the ground stated at the time the following additional grounds were stated (510-511):

"That the direct testimony of Mr. Sangster plainly shows that the said report as contained in said volumes is based upon certain assumed facts which are not stated; for the further reason that Mr. Sangster has disregarded certain entries made on the books of the respondent clearly upon inferences; * * * that he had ignored entries made in the books; that he had eliminated entries found in the books because he could not place the facts or understand the reason for the entries; that the report is based in part on hearsay and information of persons undisclosed; * * * that it is based upon some inventory or inventories without showing how he secured them or who made them; that certain items were eliminated merely on account of presumptions indulged by Mr. Sangster; that other capital items were excluded because of theories of Mr. Sangster and that the report is not based upon the books of the company because of the intersectional adjustments which show eliminations which affect his final results."

273 *Line* 7, *Subsection III.*

On July 20, 1916, Mr. Sangster undertook to answer certain questions as to detail which were passed over in his previous testimony:

(*a*) $252.25, excluded, "for running 6-inch steam pipe from new boiler to old Greene engine and taking down old pipe." The engine to which this pipe was run is not now in the station.

(*b*) $639.27, "setting up high-speed engines, etc."

"The only engines now in this power station are 5 McIntosh & Seymour engines installed in 1898 and 1902, the complete cost of which is shown in the tables of apparatus still in existance. The bipolar generators are not now in this power station."

(*c*) $242.76, "for cleaning basement and repairing condensers, in 1901 and 1902."

"The repairs consist of sundry charges in connection with the condensers installed in 1898. No new apparatus was installed under

this particular job, and the basement cleaning was evidently in connection with the same repairs."

274 *Line 7, Subsection IV.*

(*a*) The next is Section 4, Table 18, page 140, 1904: Setting up 6 Edison bipolar generators and necessary steam piping, foundations, etc.

This is composed of sundry installation charges in connection with equipment that is not now in existance. These are the same generators that were referred to in the item as to the steam plant.

(*b*) The second item under Electric Power Equipment, is Substation 2, page 142, the same table, 1899, general construction, $698.61. This is really a net figure in the books for $1,898.61 for equipment purchased less $1,200 realized, leaving the amount remaining in the account, $698.61.

Chairman Kutz: Why do you eliminate that difference, $698.61?

Mr. Sangster: As the difference between the original cost and the amount realized on the sale; the $1,200 represents the sale; the $1,898 represents the purchase, covering both purchase and installation, and both labor and material, and the installation.

Chairman Kutz: Why did you not set that item forth as under the two headings, Original Cost and Proceeds of Sale?

Mr. Sangster: That ought to have been treated that way and stated "net" in this report, and ought to be stated "Gross less the deduction".

(*c*) The next item is Sub-station No. 8, $10,058.91. That is on page 144—moving plates from Riverdale Substation and installing same in new tank and preparing building for same and new battery.

This expenditure is for property at the old Columbia No. 8 Substation. In 1905 a rotary and switchboard were installed in this Substation, but both were removed in 1908, when the use of the building as a substation was discontinued. The building was originally the property of the Columbia Railway Company, and now belongs to the Washington Railway & Electric Company.

(*d*) The next item is Substation No. 15, which follows just immediately after the one I have just mentioned, $1,368.58, remaining in the accounts as the cost of installing the battery, was paid to Richardson & Burgess, building contractors. When disposed of the Company charged the difference between the proceeds and original cost to depreciation, but overlooked the cost of installation in making the credit.

I think this item was also marked with a question that I explain how the sale was identified against the purchase. The working papers show that in every purchase of storage batteries the substation in which they were installed is mentioned, either in some record or in the voucher, and the credit for the sale. The entry in the book mentions the building in which the battery was installed originally, or at the time of the sale, I should say.

(*e*) The next item is $4,372.21, the same table, page 146, moving storage battery from Power Station B in 1899.

This battery was originally installed in what was known as the new plant of the United States Electric Lighting Company. In 1899 it was moved to the Academy of Music Substation—that is this entry here for moving. Two years later the same battery was moved to Substation No. 1. The Electric Storage Battery Company had the contract for the removal, and the cost of this second removal, $27,307.59,, is shown in Table 3 of this section, page 99.

We have allowed the second moving cost but not this first. That is the first item in that table—installation of storage battery, including cost of moving from Academy of Music to Substation—that
275 is, moving out of Academy of Music into Substation No. 1, in 1901.

He identifies it by the description. It is the battery that is stated was removed from the Academy of Music Substation to Substation No. 1.

276 *Line 7, Subsection XI.*

Mr. Sangster: I was asked to explain how these various items were placed in this table.

The first item, $163.75, for drums is the difference between the amount billed for oil drums and the amount credited on the return of the drums. These are in several old accounts, and I take it that they have been overlooked by the Company.

Freight on sales, $238.45 is for equipment sold to the Gegory Electric Company, in 1902, and of course should not be charged to this account.

The reactance coil was purchased in 1902. This is a 3½ ammeter coil, costing $170, and a switchboard ammeter costing $14, both purchased by the United States Electric Lighting Company.

Under the method by which we arrived at the line transformers and devices, at June 30, 1914, as explained in the note with Table 1—that of course covered all such items as those. The other items I did not investigate, because they were so small. I thought these would best illustrate the general content of the table.

277 *Line 7, Subsection XV.*

Mr. Sangster: I was asked to explain why $664.67 for equipment in consumers' premises etc., was eliminated. This includes one 25 horsepower motor installed in the Morris Beef Company's premises, $350; in 1902, installation of a motor in Byron S. Adams' premises, $287.87. The difference is $32.80 for miscellaneous items. These two machines are not mentioned in the inventory of apparatus in consumers' premises on the Company's records of June 30, 1914.

278 *Line* 11.

Mr. Sangster: I was asked to refer the Company to the minute or minutes dealing with the adjustment by the Potomac Electric Power Company of $279,465.79, shown on page 7.

I will refer you to a minute of the United States Electric Lighting Company, August 29, 1902, which states that the President reported that since February 23, 1901, this Company had expended in improvements and betterments chargeable to construction account, the sum of $279,465.79, which amount had been expended from the earnings of the Company and was due to the fund belonging to the stockholders, from the construction account; that such expenditures had been made under the direction of the President of the company in order that interest might be saved, which would have had to be paid if loans had been contracted instead of adopting this method of expenditure. That in order to repay said amount to the fund belonging to the stockholders of the company, he had on August 28, 1902, borrowed from the Commercial Trust Company of New Jersey, the sum of $279,465.79, and that there had been executed to the said company a demand note of this company for that amount.

Resolved, that the sum of $279,465.79 be, and the same is hereby declared as a dividend on the capital stock of this company, to be distributed, share and share alike, to the owners of the stock now issued and outstanding.

The ledger of the United States Electric Lighting Company shows that the amount of notes outstanding September 30, 1902, taken over by the Potomac Electric Power Company, amounted to $572.-618.12, of which I have a list here. This includes that demand note to the Commercial Trust Company of New Jersey.

The current assets turned over to the Potomac Electric Power Company, as shown in the Potomac Company's ledger, amounted to $492,856.99, which included the sum of $279,465.79 as on deposit with the Commercial Trust Company of New Jersey.

An entry was made on June 30, 1903, charging this amount to the plant. This is the note taken verbatim from the entry:

"This fund however did not become the property of the Potomac Electric Power Company, as check had been drawn by the U. S. E. L. Co., on August 29, 1902, to disburse the money among the owners of the capital stock of said company, in accordance with resolution of Board of Directors, passed meeting held on Aug. 29, 1902."

Mr. Barbour: Why did you eliminate that, Mr. Sangster?

Mr. Sangster: I did not eliminate it, Mr. Barbour.

Mr. Barbour: You left it in there?

Mr. Sangster: I was just showing the result of the transactions.

279 *Line* 16.

The item of $1,586.88 restored by the Commission—Construction in Progress is thus explained by Mr. Sangster:

"That is for work uncompleted at the date of the valuation. As soon as the job is closed the total expenditure will be transferred to the plant account on the books of the company, so in consideration of the value of the plant and equipment of a given date the amount carried in the account of "Construction in Progress" should be added."

280 *Line 7.*

Property sold, scrapped, or abandoned, $14,334.76.

Chairman Kutz: How about the next item, "Property Abandoned?"

Mr. Sangster: "Property Abandoned" is an account which is kept in accordance with the Interstate Commerce Commission's system of accounts, first issue, 1909. Page 58 will explain the reason for the items that have to be charged to this account. It shows all expenditures pertaining to the property prior to December 31, 1909, which have been eliminated from the plant and equipment account and which I have taken into consideration in showing the credits. That is to say, in any one of the tables referring to property sold, scrapped, or abandoned, you will find a column "Proceeds of Sale, estimated or actual." Just as an illustration, page 83 contains any items that may have been deducted from plant and charged to property abandoned. The amount of this account would not effect the cost of plant and equipment. It is in a sense deferred depreciation.

281 *Lines 23, 24, and 25.*

Chairman Kutz: Take the item "Investments," $1,138,855.80; of what does that consist?

Mr. Sangster: I would refer you to page 248, Exhibit I, of Section 17. This consists of an undivided two-thirds interest in Great Falls Water Power site, purchased from the Washington Railway & Electric Company in consideration of 10,000 shares of the capital stock of this company, May 31, 1912, $1,000,000.00. Graceland Cemetery property, situate near 15th and H streets, northeast, and containing approximately 25 acres, $120,040.50, less United States award for damage, $3,884.70, net amount $116,155.80, purchased on May 31, 1912. On December 31, 1912, $20,000 5 per cent first mortgage bonds of Washington & Rockville Railway Company at cost, $20,000. (Not claimed to be proper capital charge.)

And on item of $2,700 for shares in Lamp Testing Laboratories (line 23).

Making up the total of $1,138,855.80, shown in the balance sheet. The company carries these items in the investments account.

(NOTE.—But the company only claims that the items shown in line 23—Lamp Testing Laboratories stock $2,700.00; Great Falls Power Site (line 24) $1,000,000.00; line 25—Graceland Cemetery Property $116,155.80 are proper capital charges in this investigation.)

282 *Line* 39.

Chairman Kutz: The balance sheet of July 1, 1914, shows material and supplies, $128,893.08.

Mr. Sangster: Yes, sir. That is the actual balance sheet figure at that date. The Company prepares an inventory annually November 1, and adjusts the books to the total of that inventory.

Chairman Kutz: By your subsequent analysis you reach the conclusion, however, that the amount allowed for materials and supplies should be somewhat greater than this?

Mr. Sangster: I find that taking for instance any other period, December 31, 1913, for materials and supplies account is somewhat larger than it is in mid-summer, probably on account of the increased supplies held for the increased business. About 50 per cent of the materials and supplies account is cable; 25 per cent lamps; the balance is poles, conduits and electrical supplies.

283 *Line* 38, *Working Capital.*

Chairman Kutz: I wish you would explain in a general way how you reach the conclusion that $90,000 is a reasonable allowance for working capital, page 16.

Mr. Sangster: I have endeavored to separate out the current assets and liquid funds held by the Company as shown in its balance sheet for the last four years and six months previous to July 1, 1914, in order to ascertain what amount is carried by the Company in net cash and other current funds for working capital.

Dividing the balance sheet items between fixed plant, and the investment in that fixed plant, and the current assets and the sources from which the funds have been obtained, I find the result shown in the table on page 17, which shows that the Company had, December 31, 1910, current assets, materials and supplies, of $741,038.74, and so on down the column; that the sources from which these funds were obtained consisted of current liabilities and surplus, the figure for 1910, for instance, being $604,443.70. The balance is represented by excess of stocks and bonds over the amount of fixed assets and investments held by the Company, the analogous figure for 1910 being $136,595.04.

If we analyze the last three columns in another way, we shall find that the current assets, materials and supplies, consist of two main items, namely, sums contributed by creditors and depositors, and funds contributed by the Company itself out of surplus earnings, and so on.

Keeping to the same period, 1910, the amount contributed by outside creditors and depositors is $487,162.24, leaving as the amount contributed by Company funds, or from Company funds, $253,876.50.

A little closer scrutiny shows that this last column, the amount contributed from Company funds, shows certain fluctuations on account of abnormal conditions. For one thing the cash may be

unduly increased on account of sales of bonds. We have to adjust for the increased amount of cash. Conversely the Company, at another time, would use up a large amount of cash in extensions to property, in one year. Rather than pay interest on additional notes or borrowings they perhaps found that they could use their own cash for a short period, and just hit that at perhaps December 31, or July 1, 1914.

In making these various adjustments, I find that the actual normal amount contributed by the Company during the four and a half years ended July 1, 1914, shown in the final column of the table at the top of page 19, is as follows: $160,000 for 1910; $233,000 for 1911; $236,000 for 1912; $231,000 for 1913, and $238,000 for 1914—so that $240,000 would be a maximum amount based on the average determined in that way. We have already allowed $150,000 for materials and supplies, which is included in this computation. That would leave $90,000 for other purposes.

284 *As to Detail of Intersectional Adjustments & Eliminations.*

Mr. Ham: At this point I would like to say that acting upon the offer of the Commission, the officers of the company have asked to be furnished by Mr. Sangster with the detail supporting certain of his statements. If we receive that detail we will be ready to proceed on August 7. The detail that I have asked of Mr. Sangster is the detail supporting the deduction of $388,953.85 shown on page 15 of his report; also the details supporting the inter-sectional adjustments contained in the columns headed "Street and Park Lighting System" and "Arc and Incandescent Lamps," etc., shown on page 245 of Mr. Sangster's report.

Mr. Sangster: We have all these details in our sheets. However, they contain numerous items. We should have to go back over all our working papers and list all of the items we have shown in these various tables at the end of each section. It may take considerable time. As I understand it, the Company wish to go into each one of these through their accountant representative and have them verified from their own records.

Chairman Kutz: Personally I cannot see the importance to the company, much less to the Commission, of going into the details of inter-sectional differences. They are merely transfers which balance each other, and I don't see how in any way they can affect the question.

Mr. Ham: I had two requests, the inter-sectional adjustments which I just mentioned applying to two accounts only.

Mr. Sangster: Oh, in two cases only—that would not take so much time. The time would be involved in producing the details of the other adjustments, the deductions. It is a question of time only. I have assigned an assistant who has commenced now to make out these lists. You can appreciate that we have to go back to the records of the United States Electric Lighting Company as far back as 1880 in order to prepare our lists. * * * If it is required by

the company and ordered by the Commission we can get these details without any difficulty. I mean to say that we are going to cover now a period of over thirty years in getting out these various adjustments.

Mr. Ham: I do not want the statement I made to act as a waiver at all of our right to demand other data, but at the present time that is all we have asked for.

Mr. Sangster could not assume how long it would take to comply with that request.

Chairman Kutz: It seems to me that the Commission's activities should be limited to pointing out to the company, or the company's representatives, where this information may be found.

Mr. Ham: That is precisely the way that I put it to Mr. Sangster that if he would point out to us where this information could be found, we would not expect anything further of him. But he indicated that the easiest way, and the most satisfactory way for him was to collate that himself. We even went so far as to offer to Mr. Sangster the services of any one or more of our men, that could assist in working with him to get this information. So that we feel that the company has gone just as far as it possibly could.

Mr. Sangster: The company has asked to be satisfied on each and every one of the items. Mr. Ham has correctly stated, that the best way, in my opinion, to get this matter out, as we have to deal
285 with each particular item, is to have my accountant list the items making up each one of the tables.

Chairman Kutz: It seems to me that that involves a great deal of work, and that by digging out the details of a certain number of these items the method by which the results were accomplished and the accuracy of those items, ought to leave the company in a position to do the balance of it itself. I do not think it necessary to dig out, or to help them dig out, the details of every item. It seems to me that might be a task that would take half again as long as we have spent in making this valuation—in other words, a year.

Mr. Sangster: It will take quite a considerable length of time. It took us two years to complete the whole investigation. To go back again and build up these figures is quite a task.

Mr. Ham: Our suggestion is made with the firm belief that it will expedite the final conclusion of the matter. If we have got to develop through cross examination these facts it will take inestimably longer than to do it the way I suggest. In arriving at what he terms the cost of our property, Mr. Sangster has seen fit to exclude a great many items. We feel we are entitled to know the reasons why they were excluded and that those exclusions were properly made from our books. We have not taken him for cross examination, but we shall demand to know the accuracy of those statements and that they are prepared from our books, and how they are prepared. If we can be satisfied in advance that they are correctly taken from our books, and that the facts are correctly stated in the tables, then of course there is no such necessity. But we are in no position now to pass upon the accuracy of these results as here shown.

Chairman Kutz: Then why not pick out a few of the larger items,

or any item you see fit, at random, and let them point out the method by which the result is arrived at?

Mr. Ham: That is practically what I have done. Out of all the mass of details which are contained in these three volumes I have asked only for the verification of a very small part of it.

Major Schley: Will you refer to that first figure you spoke of, shown on what page?

Mr. Ham: $388,953.85, shown on page 15.

Chairman Kutz: That represents the net amount of property sold and scrapped.

Mr. Ham: I would like the record to show, and the Commission to *to* believe, that we are not making this suggestion or this request with any thought of interfering with arriving at a conclusion in this matter, but rather in the thought that that is the best way to get at this. I have not demanded or requested details of these intersectional adjustments except in two of these groups, in order that the company may satisfy itself that it does not have any affect upon the final result.

Of course the point that seems strange to us is that there should have been this vast amount of effort, time and expense in preparing something that has, as now stated, nothing to do with the final result which has been arrived at. If it was of any value to Mr. Sangster in arriving at his results, then the company is entitled to know in what way it does tend to influence his results, his ascertainment of the results. But we are not demanding that. I am asking only for the supporting data of two of these sections in order to enable the company to determine whether or not it does have any bearing upon the final statement of fact.

Mr. Syme: Cannot you find out from your books and from his testimony as to whether such is the fact or not?

286 Mr. Ham: We cannot. I will show you. On page 81 of Mr. Sangster's report is an item of $77,737.58, purporting to show the cost of the original installation of 17 boilers, including foundations, steam piping, fittings and accessory equipment, for a period extending from 1882 to 1899. Certain details of that item are shown on detailed Schedule No. 61. These are in such shape that they cannot be reconciled by us with our book entries. No dates are shown, no references are given. It may be right and it may be wrong. We know that in arriving at this in that statement of the cost, Mr. Sangster has prepared it from the books. All that we want is to ascertain how he did arrive at it from the books in order for us to know whether or not it is correct. If as a matter of fact the cost of those boilers was $67,000 instead of $77,000, then the conclusion of Mr. Sangster in the amount that should be eliminated, is wrong. We cannot test the accuracy of the result without knowing the accuracy of the items which go into the original cost, and the deductions that have been made.

Chairman Kutz: It would seem to me in an item of that character it ought to be possible for any one of your accountants to take from the books what the cost figures are, and then if the result differs from

the $77,000 found by Mr. Sangster, present it to the Commission in evidential form.

Mr. Ham: That is impossible. All that we are asking——

Chairman Kutz: It is no more impossible for the company to determine that cost than it was for Mr. Sangster to do it.

Mr. Ham: But it is possible now for Mr. Sangster to support his statements, and I assume that the company will demand the privilege of having him substantiate his statements to such an extent, anyway, as to convince the company that his conclusions are correct.

Chairman Kutz: Not to the extent, though, of doing over again the work that he has done.

Mr. Ham: It is not doing it over. He has all these records. It is only a question of getting at them. It is availing ourselves of the very offer that the commission has made to us, of allowing us to see the data on which he bases these figures.

Chairman Kutz: We will take a few of the items, such as you may select, and have Mr. Sangster, or his assistant, point out in detail the methods by which they were built up. But we cannot undertake to do that with reference to all the items in this compilation.

Mr. Ham: I assume the company would have the right to develop those facts upon cross examination.

Mr. Bowen: What Mr. Ham means is that if this could be given to the company beforehand it would save the work of the lawyers in cross examination, because they would certainly have a right on cross examination to ask Mr. Sangster to explain, and he would have to go and get the original data.

Chairman Kutz: We have allowed practically two weeks for that purpose.

Mr. Bowen: But, Mr. Chairman, that would not save your time, and save the time of this Commission, when we get into the cross examination. We are trying to save your time if possible. We do not want to have to go into the details of this thing on cross examination, which we will be obliged to do if we are not satisfied——

Mr. Barbour: If the work checks up there will be practically no cross examination at all. There will be just that much time saved.

287 Chairman Kutz: If as a result of a joint investigation of some of these items, picked out by yourself, it develops that they are accurate, the Commission will expect that the Company show that the rest of them are wrong, before they are proved in detail. In other words, we do not feel that the company is taking a fair attitude in devoting its entire time to attacking items some of which have been shown to be correct, or at least in part, and not offer any evidence showing that they are incorrect.

Mr. Bowen: Might we state here that the burden of proof of showing the exclusion, rests upon the Commission. Now, Mr. Sangster has gone on in a prima facie way and said what these exclusions or omissions or eliminations should be.

Commissioner Newman: Is not this also true, that the Commission is to judge as to when it has discharged that burden, that it

can put on as much or as little proof to discharge that burden as it desires?

Mr. Barbour: That is one of the disadvantages that we labor under, Mr. Commissioner.

Commissioner Newman: I know, but Mr. Bowen was leading up to the argument that it was up to us to put these things in in detail. All we need to give you as a matter of right is our totals, and say, "Here they are; shoot at them." But instead of that we have——

Mr. Bowen: Here is the point we are addressing ourselves to: Mr. Sangster proceeds to develop certain things in his report; Mr. Ham says he is unable to get from the books any such deductions or eliminations that he shows in his report; he is unable to check them or to see how he arrives at them.

Chairman Kutz: One minute. What Mr. Ham says he is unable to do is to determine from his books the cost of the original installation of 17 boilers, including the foundations, steam piping, fittings and accessory equipment. I believe that the company or its employes can ascertain that from their books, and if they ascertain a different total it is their business to present that fact to the Commission.

This is not a question of elimination; it is a question of the cost of the installation. The amount received from the proceeds of sale, the amount written off for depreciation, are taken direct from the books; there is no question about that. The only question at issue is the original cost, and the company should have that information. If this is incorrectly taken from the books, it is the company's business to state the correct figure to the Commission.

Mr. Bowen: If I understand Mr. Ham correctly, that is just what he cannot do. He says that he cannot check Mr. Sangster's report with our books.

Chairman Kutz: We do not ask him to check his report. We ask him to take one of his accountants, or his expert accountant, or any one of the company employes, and find out from the books the cost of the original installation of that item. We are perfectly willing to help him on the few items to show the method.

Mr. Bowen: Does the Chairman mean that when it comes to a cross examination of Mr. Sangster that the company will not have the right in detail to ask Mr. Sangster how and in what way and in what manner he arrives at this elimination and deduction, in order that we may be able to see whether he is right or wrong?

288 Commissioner Newman: What you can ask Mr. Sangster is this: He testified that he found from the books of your company that these boilers cost $77,000. In your cross-examination you can ask him any sort of question you want to as far as I am concerned, but it seems to me that his answer to your questions is going to be, "I found that on the books of your company." And when he has done that——

Mr. Bowen: I think it would facilitate the matter if you would ask Mr. Sangster if he can answer on cross-examination that very question without his original data. I don't believe he can. I

mean by that, Mr. Commissioner, that I think it is a detail that you gentlemen have not had the opportunity to really see and to look at the matter as we are trying to present it to you. It will save you gentlemen time in the cross-examination if this can be done.

Mr. Syme: If Mr. Sangster don't sup-ort on cross-examination the figures he has given to the Commission, the Commission does not have to take them.

Commissioner Newman: If the Commission takes them, and they are not sup-orted, we will take them at our own risk, of course.

Mr. Syme: You have the right on cross-examination to probe into the basis of any figures given.

Mr. Barbour: I know, but we are trying to save an unnecessary consumption of time here in this hearing.

Chairman Kutz: That is the very purpose for which we are taking an adjournment of two weeks; otherwise we would not adjourn at all—we would go ahead tomorrow and the next day. But to comply with your specific request, made by your accountant, who asked for three weeks we gave you the three weeks, and one week more, in order that the company might digest the results of the analysis, and have fixed the 7th of August as the date for the cross-examination.

Mr Barbour: We are not asking for further time on that; we are just asking the Commission to give us the facilities which we understood had already been granted us orally, and throughout this record been proffered us.

Chairman Kutz: We want to be helpful but we cannot undertake to do the work over again.

Commissioner Newman: We will detail as many people as we can spare to work with your people in the interval between now and the 7th of August, and do everything that can be done in that time, but we cannot guarantee to give what Mr. Ham has requested.

Mr. Barbour: That is all we want.

Commissioner Newman: We will do that for them.

Chairman Kutz: It is the present intention of the Commission to follow up the cross-examination of Mr. Sangster by giving the company an opportunity to cross-examine Mr. Pillsbury. In other words, it is not the intention to have any further delay.

Mr. Barbour: We are not suggesting any delay on this account at all. As we understand it, we were met by the declination of Mr. Sangster to co-operate with us to get this very data that we are asking for.

Mr. Syme: Mr. Ham said that he would be ready to proceed on August 7 if he got this information from Mr. Sangster. It may have been an unfortunate way to put it, but that is what he said.

289 *Line* 22.

Unamortized Debt, Discount, & Expense.

Mr. Sangster: This is comprised of two main items, a balance of $177,930.26, for unamortized discounts on the consolidated mort-

gage bonds. This account was opened March 31, 1908, and shows the discount on each issue of bonds since that time, or each sale of bonds since that time. Then various credits are passed to this account, being a proportion of this discount charged to operating expenses, charged to income account. The balance is carried over from year to year. The accumulated total at June 30, 1914, was $177,930.26. That is not shown in the report. The balance is $41,646.30 for the first mortgage bonds, discount and expense. This second account was opened December 31, 1909.

Chairman Kutz: The total of the two accounts, the aggregate of dealings in the two accounts, is that shown in the balance sheet as $219,576.56?

This completed the direct examination of Mr. Sangster and at its conclusion the motion to exclude his reports and testimony for the reasons heretofore assigned on July 14, 1916, all of which were reitterated, was renewed and in addition thereto upon the ground that all of said report and testimony except that portion which shows the total investment in plant and equipment amounting to $11,529,173.67, is immaterial, incompetent and irrelevant, in that it does not in any way or manner tend to show any element of cost or value or anything substantiating or properly affecting the total investment as shown on the books of the respondent nor anything required by the Act creating this Commission, or which this Honorable Commission is permitted to take into consideration in arriving at the fair value of respondent's property. And for the further reason, that it does not appear by the testimony that Mr. Sangster is qualified to testify as to any of the eliminations, omissions and exclusions, from the total investment as shown on page 15 of Volume 1 of his said report, his testimony being that he is by training and occupation an ac-ountant, and that he is not an engineer, and there is nothing in the record to show that he has had any training or experience in the technical and practical side of the operation, construction or financing of public utility properties—A ruling on said exception was reserved (818).

Cross-examination of this witness was resumed on September 15, 1916, and motion to exclude his report and all of the testimony given by him in support thereof was renewed on that day as follows:

First, for the reasons stated by Mr. Barbour on July 13th, see transcript of the record page 399; for the reasons stated by Mr. Bowen on July 14th, see transcript pages number 510 to 512; for the reasons stated by Mr. Bowen on July 20th, see transcript pages number- 816 to 818, as if they were now repeated at length and for the following additional reasons:

290 1. Because the said reports and evidence are incompetent and irrelevant to any legitimate purpose of this investigation

2. Because the said report is incomplete and inaccurate for the period it purports to cover.

3. Because it is not the result of personal investigation or personal

consideration by the witness or by any third person or persons shown to be competent to compile the same from the books and records of this Company upon which it is claimed to be based but is the composite result of investigations and examinations by unknown persons.

4. Because, while purporting to be compiled from the books and records of this respondent, it appears that the original book and record entries have been disregarded and without adequate reason, shown or stated.

5. Because it does not show nor purport to show the amount of money or value actually expended for capital purposes in the construction and equipment of the Potomac Electric Power Company at present or at any given time in the past.

6. Because it does not show nor purport to show what, if any, amounts charged, or otherwise shown by the books of the respondent as so expended, should not have been so charged or shown nor what, if any, such amounts were not in fact so expended.

7. Because it does not show nor purport to show what, if any, amounts as actually expended should not have been so expended.

8. Because the report is the result of hearsay and of unidentified and undesignated reports, rumors and investigations, made or repeated by other and unidentified third persons communicated to, or received by, the witness by means of other channels not stated or shown and without notice, knowledge, means of knowledge or opportunity of investigation, examination or verification on the part of respondent and with no showing of the identity, skill, knowledge or means of knowledge of said third persons nor of the substance, contents or accuracy of their reports, rumors or investigations.

9. Because this Commission has failed to furnish to respondent the data in its files from which said report is compiled, when requested for the purpose of enabling respondent to verify its correctness.

The cross-examination was thereupon undertaken by Mr. Bowen:

Mr. Sangster testified that he came to this country in 1911; that he is a citizen of this country and became a public accountant in 1906; difficult for him to answer when he had his first experience in public utility accountancy; joined the Chicago staff of Marwick, Mitchell, Peat & Company in January, 1911, and came to this country for that purpose; that his prior experience was mostly street railway work; audits of street railways of the cities of Falkirk, Scotland; the Edinburgh District Tramways Company, the street railway system of the City of Edinburgh, which is an underground cable system much similar in construction to what is in use in the City of Washington; none of this experience covered valuation investigations, merely annual audits, although in one case, the work was similar to that of valuation. The first auditing for investigations in this country was the Des Moines Gas Company in which he had charge of the accounting work (920) for Marwick, Mitchell, Peat & Company; Mr. James Hall, manager of the Chicago office, was his immediate supervisor; Mr. Hall furnished the principal testimony; Mr. Sangster testified to

details. He had no supervision in the Des Moines case that
291 would amount to anything. Mr. Hall prepared his report on the basis of the detailed figures that he prepared for him from the records of the company; he merely assisted Mr. Hall in the case. He also did the Des Moines Water case employed by the same firm. He testified in that case and no one else. He made an examination of the Chicago Telephone Company's books covering a period from 1880 or 1883, or somewhere thereabouts, down to 1911. That report was prepared for Doctor Edward W. Beamis, a special expert retained by the city counsel of Chicago to make a report on telephone rates in the city of Chicago. He made the report in that case but did not assume responsibility for it because he didn't sign the report. *He does assume responsibility for the report in this case.* His other utility experience was an audit of the accounts of the St. Paul Gas Company. He gave instructions as to what detail was to be taken off and elaborated. Again, this was under Mr. Hall. Mr. Hall signed the report. Along about the same time he had experience with the Springfield Gas Company, the Mason City Gas Company, the Cumberland Telephone & Telegraph Company, with headquarters in Atlanta, Ga., the Detroit Street Railways; he made an accounting investigation of the books of the Detroit Railways Company. Dr. Bemis prepared the report and submitted the same. Dr. Bemis was retained by the City of Detroit to make the valuation. He directed the investigation and also an engineering examination to determine the cost to reproduce the properties. This was submitted to a special street railway committee of the City of Detroit and the matter was finally put up to the vote by the citizens and was voted down. The witness first became acquainted with Dr. Bemis while he was investigating the books of the Des Moines gas company and after severing his connection with Marwick, Mitchell, Peat & Company he undertook to investigate the utilities of Washington here at the request of Dr. Bemis; that he left Marwick, Mitchell, Peat & Company because of some difference of opinion as regards the policy of management which he felt he could not accede to just before he came to Washington. Asked "Did you resign voluntarily or were you dismissed" the Commission declined to permit him to respond. His instructions from Dr. Bemis embodied a request to have a statement as to the original cost of the Detroit Railway properties. The witness means by "original cost" the amount of money expended on the properties in existence as of the date of the valuation.

Mr. Bowen: And not an investigation to ascertain what has been spent by the utility?

Mr. Sangster: That depends upon what you cover by that expression.

292 The works on accounting that he has read were so numerous that he could not give a list—standard works in this country and England—by such authors as Dixie, Montgomery, etc. When asked what electric light corporation he had to do with he said Mason City Gas & Electric Light Company, Mason City, Iowa. He does not know the population but thinks it is distinctly more than four or five thousand nor does he recollect how big the com-

pany was or the capital. He revised the report of that company altho he did not make any report and that he has had no occasion to investigate any electric light corporation in this country; that he had no direct contact with the books, but numerous cases of revising reports on their operations; but has had no actual personal experience in the investigation of books of electric light corporations.

Mr. Bowen: Have you ever qualified as an expert on values before any court or quasi-judicial body?

Mr. Syme: I do not think this witness is put on the stand as an expert on values. He is put on the stand as an expert accountant, testifying to the accounting by your books.

Chairman Kutz: This witness has not represented himself as an expert on values; he has represented himself as an expert accountant and statistician. If you will ask the question in that connection, as to an expert accountant and statistician, I think it will be a proper one, but to ask him as an expert on values, I do not think it is relevant.

He qualified as an expert accountant in the Des Moines case.

Commissioner Brownlow: You say you have testified before a commission or court or quasi-judicial body in matters of accounting and investigation.

Mr. Sangster: Yes.

Commissioner Brownlow: In any such investigation did you ever have the question involved as to whether an item should be taken out of capital account that may not add to the value of the property of that company?

Mr. Sangster: The subject of value, of course, was not under consideration in any accounting question, but value as it is used in the general broad sense.

Commissioner Brownlow: Make it cost of property. Did you ever have to remove from the capital account an item which did not add to the cost of the property?

Mr. Sangster: Yes, sir.

Commissioner Brownlow: In other words, something which in your opinion was incorrectly entered in the cost of the property, under accounting principles.

Mr. Sangster: It was originally correctly entered, but had been lost sight of and had not been properly adjusted when the property itself disappeared.

Commissioner Brownlow: Would that correspond to such items as you have eliminated in this report?

Mr. Sangster: Yes.

Mr. Barbour: Have you ever testified, or do you regard yourself as an expert to testify, as to whether property is increased or
293 decreased in value by work done on it or by detractions taken from it?

Mr. Sangster: If you will substitute the term "cost" for "value," I should say yes.

Mr. Barbour: I am not speaking about cost. I am talking about value.

Mr. Sangster: I do not understand what you mean by the term "value."

Mr. Barbour: What did you mean by it when you said that a certain repair did not add value to the property, and therefore you had eliminated it?

Mr. Sangster: I probably used the term there in a general sense, when I really should have used the term "cost"—the amount of money expended.

Mr. Barbour: Then you are not an expert on values, are you?

Mr. Sangster: I do not know what you mean by "values" there.

Mr. Barbour: You do not know even enough about values to know whether you are an expert on values, then, or not? Is that what you mean?

Mr. Sangster: I think that the question involved in all this work here is the amount of money expended, and is all that this witness testifies to.

When asked if he had been governed by the views of Dr. Bemis in the preparation of his report in this case, replied—"I do not know that Dr. Bemis has any views as regards proper accounting principles; that Dr. Bemis asked him to make an investigation of the accounts of the Potomac Electric Power Company and submit a report to him showing the amount of money expended on the company's property. There were no specific instructions covering the manner in which the report should be submitted, except as he (the witness) outlined it; no other instructions were given. He conferred with Dr. Bemis from time to time as the work progressed and reported progress. There were no instructions as to the method to be followed. He followed the same general instructions as in the Detroit case? There are no opinions that have been reflected at all in this report. It is, as far as he had been able to give it, a statement of actual facts. That Dr. Bemis did not instruct him at any time to proceed with his accounting work in any way that would contravene the principles of correct and proper accounting. The witness does not know Dr. Bemis' views as to the methods to be applied in valuation and didn't know them when he prepared the Detroit case.

Mr. Bowen: Will you give us your views as to what constitutes the cost of property?

Mr. Sangster: Cost of property is shown on the books of the company, and that is the aggregate of the amount of money shown to have been expended on these properties. That is what he has attempted to ascertain; that this report shows the amount of money expended on the properties of the Potomac Electric Power Company, and contends that his report shows all the money spent by the company in the acquisition of property, all the property in existence on June 30, 1914.

294 This is an amplification of his former answer and not a modification. His report in this case is based on the instructions contained in the act of March 13th which requires that the Public Utilities Commission shall ascertain the amount of money expended on property.

Mr. Barbour: As I understand this witness, he has testified that his

definition of cost of property is what the company actually expended in the acquisition of the property actually in existance at the date of his investigation. Is that correct, Mr. Sangster?

Chairman Kutz: It seems to me that that question is hardly pertinent to this investigation because, regardless of the witness' present opinions in the matter, the Commission ruled that that was the intent of the law, so interpreted the law, and even if this witness' personal opinion had been contrary, they would not have been allowed to prevail in this investigation. The investigation was made in accordance with the Commission's interpretation of the law.

Mr. Sangster stated his agreement as an accountant and on his own responsibility that the view of the law announced by the Chairman but stated he could not cite any particular authority to support it.

Mr. Syme: Do you understand the question thoroughly there, Mr. Sangster?

Mr. Sangster: I think so.

Commissioner Brownlow: You do not mean to say that there is no authority supporting that view?

Mr. Sangster: He is merely asking me if I can cite one. I do not recollect any special authority or particular authority whom I could conscientiously here state.

Mr. Barbour: His view is that the Commission is right but he cannot cite any authority to sup-ort that conclusion; that this corporation keeps an account which is designated "cost of property" or "cost of plant," and that represents the total group cost of their property at the particular date and if depreciation accounts are correctly recorded there should be taken out of that account, according to accounting principles, property which has been disposed of and is no longer a part of the plant of that company.

Commissioner Brownlow: Has this company, Mr. Sangster, in its property account, from time to time eliminated items that have disappeared?

Mr. Sangster: They have eliminated some but not all. This company has no plant account which purports to show all the plant that it ever purchased; knows of no company that keeps such an account, and that he attempted to adjust the figures so that he would have a total showing the cost of property at present in use, and so adjust the amount of money expended on property in existance at the date of the valuation.

Witness thinks it is possible to show "in a sense, required by this act, the amount of money expended as nearly as practicable"; that by the term "in a sense as nearly as practicable" he means as "nearly as practicable. Of course it is not possible to give the actual amount down to the last cent.

The witness thinks it is practicable to ascertain the amount of money by a careful examination of the books and accounts of the company showing the various stages through which the property has passed, what has taken place year by year, the repairs that have been made, the renewals and displacements; just what has been expended on the property now in existance.

That in certain cases he might have to go outside of the books "to

strengthen our conclusions by other means"; that he has done that to some extent in this case. "If we could not ascertain why it was that the records of the company, as they stand today, do not show that a certain piece of machinery is in a certain particular place, we
295 may require that some assistant ascertain that it is not the fact that this particular unit is in that place, and that it should still be allowed to remain in the accounts. Instances of this nature are the only instances in which the books have been departed from. While the books were always the principal basis on which we would form our conclusions, in certain cases it is necessary to go outside of them.

Mr. Ham: Does Judge Prouty think this method is a practical method?

Mr. Sangster: I believe he is — the opinion it is not altogether practical for steam railroads, but he has himself stated to me, at least my recollection is, that his statement was that it is more or less practical, and is practical for municipal undertakings—I should say local utilities.

Mr. Barbour: Can you take up a payroll voucher or a voucher for supplies, and tell, by reading it, whether the labor and material were used for the betterment of property or for renewals, and which should properly be charged to operation? Can you do that?

Mr. Sangster: It is not always possible to do so in steel railroad accounting.

Mr. Barbour: Is it possible to do in connection with an electric lighting company?

Mr. Sangster: It is possible to retain some check on the amount as shown by these accounts.

Mr. Barbour: Then that comes to your judgment as to whether or not that was operating expense or a capital expenditure, doesn't it?

Mr. Sangster: Unless it is clearly shown that the entry is made in error, it is assumed to be correct.

296 *Line* 11.

The witness has not analyzed all the operating expenses of the company to find out whether or not improvements and betterments have been taken care of in operating expenses instead of being charged to property accounts, but said "We have kept a general survey of them."

Mr. Bowen: What lighting companies are shown in your report to have existed and which have been taken over and now form a part of the present Potomac Electric Power Company?

Mr. Sangster: On pages 2 and 3 you will find the historical matter dealing with the companies absorbed or merged in the Potomac Electric Power Company as it now exists, which is as follows:

Historical.

The early history is concerned with a succession of several corporations operating in the Georgetown district, the last of which is the

Potomac Electric Power Company incorporated in 1896 and now operating in the city of Washington. Until 1902 business in Washington was carried on by a separate corporation, the United States Electric Lighting Company. The property and franchises of this company were acquired by the Potomac Electric Power Company at the last mentioned date.

The company first to commence business in Georgetown was the Potomac Electric Company incorporated under the laws of the District of Columbia April 18, 1891, with a capital stock of $25,000. Poles and wires were erected in the District commencing at the Chain Bridge and extending into Georgetown. A receiver was appointed July 17, 1893, and the property subsequently sold to Amherst H. Wilder of St. Paul, Minn., the sole stockholder and the holder of mortgage bonds for $50,000. The conveyance of the property is dated October 11, 1894.

With Amherst H. Wilder and Victor M. Watkins of St. Paul, Minn., and others as incorporators the Potomac Light and Power Company was organized under the laws of the District of Columbia, November 3, 1894, with a capital stock of $35,000. At this time there was operating in the suburb of Eckington a small plant known as the Washington Electric Light Company or the Eckington electric light plant, owned by George Truesdell, sometime a Commissioner of the District of Columbia. The engine and dynamo were located in the station of the Eckington Railway Company and supplied power for public and private lighting.

In 1895 these two concerns were purchased by Messrs. O. T. Crosby and Charles A. Lieb as the Potomac Electric Power Company. The old station of the Potomac Light and Power Company at the Virginia end of the Chain Bridge was abandoned and new dynamos installed in the station of the Georgetown and Tennallytown Railway Company in which Crosby and Lieb had an interest. It was intended to introduce a new scheme of supplying power for operating railway companies in the District of Columbia. A number of contracts for this purpose were eventually secured, property was purchased at 33rd and K Streets, N. W., and new mechinery installed. In order to comply with the District regulations the company was incorporated under the laws of the District of Columbia April 28, 1896, with a capital stock of $500,000. The company was rapidly coming into competition with the United States Electric Lighting Company, having been awarded a contract by the Commis-
297 sioners for the installation and maintenance of a number of arc lights for street lighting in the city of Washington about August 5, 1896. This required the issuance of permits for the laying of conduits, the legality of which was contested by the United States Company but unsuccessfully.

The United States Electric Lighting Company was organized under the laws of the State of West Virginia October 1, 1882, with a capital stock of $100,000, for the purpose of furnishing electric light and power to all persons applying and contracting for the same, including the United States Government. Operations were carried on in the District of Columbia largely in the City of Washington,

and in fact until 1896 the Company retained control of all the business done in the City, that is, East of Rock Creek. An effort had already been made by the Potomac Company to obtain extensions of its lines within the city limits of Washington in certain streets not occupied by the United States Company, and a majority of the Committee of the District of Columbia had reported favorably upon a bill (S. 3088) authorizing such extensions, but no action was taken by Congress. (54th Congress, 1st Session, Senate Report No. 935, May 21, 1896). Later, November 30, 1896, the Supreme Court of the District of Columbia decided that the Commissioners had power to permit the laying of conduits for necessary extensions of street lighting service, and that the power granted by Congress was not intended to confer any exclusive rights upon the United States Company. Finally, Hearings were held in January 1897 on a joint resolution (S. R. 187) which proposed that until definite action had been taken by Congress regarding the construction of conduits, permits might be issued for immediate extensions of existing service to the United States Company in the territory lying East of Rock Creek, and to the Potomac Company in the territory lying West of Rock Creek. The Hearings were reported January 26, 1897 but no action appears to have been taken by Congress.

Competitive conditions were maintained only for a brief period, after which the records of both companies show similarities in method etc., indicative of concerted action. The minutes of the United States Company indeed state, under date May 5, 1899, that through the consolidation of the office and working forces of the two companies a number of changes had been made, also a considerable saving in operating expenses. The consolidation was effected as at September 30, 1902, when the United States Electric Lighting Company sold its property "including the good will of its business" subject to the outstanding mortgage and floating debt, for $3,250,000 Common Stock of the Potomac Electric Power Company.

The growth of the two principal companies is illustrated by the comparative statistics contained in the balance sheets submitted in Exhibits "A" and "B" of Section XVII. It will be observed that the capital stock of the Potomac Electric Power Company amounts at date of valuation to $6,000,000 of which $250,000 is preferred and $5,750,000 common stock. All of the stock is owned by the Washington Railway and Electric Company. The funded debt amounts to $6,729,000, consisting of $1,700,000 first mortgage 5% bonds, and $5,029,000 consolidated mortgage 5% bonds, no part of which is owned by the Railway Company according to its annual report for 1913.

Power for railway and lighting purposes is generated at the Benning Power plant which has a rated capacity of 37,000 k. w., equivalent to 50,000 electrical horse power. The current is distributed to 13 substations at high potential. The total connected load December 31, 1913, is given as 1,080,000 in 16 c. p. equivalents, the number of street lamps in service, both arc and incandescent, 7327, and the number of meters in service, 22,483."

298 The witness has made no investigation of any books belonging to the Heisler Electric Light Company and does not

recall any entry dealing with the purchase of the Heisler Electric Light Company by the United States Electric Lighting Company; and he does not know that the United States Electric Lighting Company had taken over the Heisler Electric Lighting Company and nothing of that kind is shown in his report.

Mr. Bowen: Why didn't you show it in the report? If you had known of the company. I presume you would have shown that property?

Mr. Sangster: If it was an important purchase it would be shown.

Mr. Bowen: Would you have eliminated any purchases, whether they were important or not?

Mr. Sangster: This was a mere sketch, a mere general sketch, and does not attempt to show exactly what took place.

Witness does not recall the Heisler Electric Lighting Company purchase and to his recollection had never heard of any such company until today. He never had any occasion to investigate the Brush-Swan Electric Company and does not recall what property it owned or controlled or what was taken over by the United States Electric Lighting Company. Asked if he had ever heard of that company before today, he said—"Yes, that it was a well-known name, but does not recall that he ever heard of that company having any connection with the property which the United States Electric Light Company took over from it. He had read several acts of Congress dealing with the electric light situation in the District of Columbia but could not give specific acts and does not know what acts he has read; that none of the acts which he has read had anything to do with the accounting system of the Potomac Electric Power Company.

299 The witness thinks that the Potomac Electric Company incorporated under the laws of the District of Columbia is the original predecessor of the present Potomac Electric Power Company; he learned that indirectly through the balance sheets of the Potomac Electric Light & Power Company; that he could not obtain any records belonging to that company or any older company; he did take the balance of the Potomac Light & Power Company. They are not shown in the report, however, which in no ways deals with the Potomac Electric Company. The attention of the witness being directed to the 4th paragraph on page 2 of his historical review where some reference is made to the Potomac Electric Company said "that is another company. That is the power company. The original company was the Potomac Electric Company, and the report does not deal with that company," though he stated on page 983 "The report shows so much of the property as was eventually handed over to the Potomac Electric Power Company; that the Potomac Light & Power Company's balance sheet showed the property handed over to the Potomac Electric Power Company, including any that originated with the Potomac Electric Company.

Mr. Bowen: Can you turn to your report that deals with that situation?

Mr. Sangster: The report does not show the balance sheet of the Potomac Light & Power Company?

Mr. Bowen: What does your report show as to the property owned by the Potomac Electric Company and that was taken over, as you say, by the Potomac Electric Light & Power Company?

Mr. Sangster: It does not show the property specifically held emanating from the Potomac Electric Company. It is dealt with in the report.

And when asked to specify where said—

Section 17, Exhibit A. You will find the first row of figures are given as of October 1, 1896; that covers property the date that the Potomac Electric Power Company took over the property of the Potomac Light & Power Company. I have already stated the property of that particular company is not separated; he did not undertake to separate it.

Asked what study, if any, he had made of the Potomac Light & Power Company, incorporated under the laws of the District of Columbia, and the extent of its operations, he said:

You will find on page 4, a statement of the situation with regard to that company in the second paragraph, and the only available record of the Potomac Electric Light & Power Company is a ledger. That ledger showed the total property according to the books of that company, at the date it sold its property to the Potomac Electric Power Company. The property included for the Potomac Light & Power Company taken over by the Potomac Electric Power Company is $14,304.13, plant and equipment.

300 Mr. Bowen: What study, if any, did you make of the Potomac Light & Power Company, incorporated under the laws of Virginia, and do you know the extent of its operations and property owned or controlled?

Mr. Sangster: This Potomac Light & Power Company, I understand, was organized in Virginia, and latterly was organized under the laws of the District to comply with the district laws.

Mr. Bowen: No, sir. They are two different corporations. I referred firstly to the corporation that was incorporated under the laws of this district. Now I am referring to the Potomac Light & Power Company, incorporated under the laws of Virginia and which transacted business in the District of Columbia. Did you make any study of that corporation, and if so, what?

Mr. Sangster: My understanding of the situation is that the Potomac Light & Power Company was originally organized in Virginia, and in order to do business in the District of Columbia was latterly organized under the laws of the District of Columbia. That is my understanding. The organization under the laws of the District of Columbia was November 3, 1894. The Potomac Light and Power Company organized under the laws of the District of Columbia on November 3, 1894.

Mr. Bowen: That is not the company I am talking about. I first went back to the two Potomac electric companies. The company I am referring to right now is the Potomac Light & Power Company under the laws of Virginia.

Mr. Sangster: There is no mention of that company in this report. We have no records belonging to that company available. We have all of the property taken over by the present company from whatever company the property was obtained. We have the records of this present company. I do not think the records of the present company show the records of the Virginia corporation. I say the records of the present company include all the plant which had been taken over from any other predecessor company, but what property was owned by that Virginia company and taken over is a different question.

The witness does not know what property was owned by that Virginia Company and taken over, and the extent of his information is outlined in general on pages 2 and 3 of this report and does not know anything beyond what is shown in his report on that subject together with the various balance sheets.

Mr. Bowen: Do you claim your report shows all property that was owned by these various companies and what became of it?

Mr. Sangster: The report shows the *book value* of all the properties taken over by the Potomac Electric Power Company.

Asked to point out and analyze the costs of the Potomac Light & Power Company and state in detail what property he included in it, Mr. Sangster said (pages 982-983):

My report, on page 6, shows that the sum of $255,000 was paid in notes and in cash for the plant and franchises of the Potomac Light & Power Company, and the books of the company showed
301 that this $255,000 included physical property amounting to $46,810.50, and the books showed that. The ledger of the Potomac Electric Power Company on page 80, of ledger No. 2, October, 1896, to May, 1898, P. E. P. Company, the first entry is October 2, 1895; that is a debit and reads: "To Potomac Light & Power Company, referring to some subsidiary record page 2, $255,000." This is just to identify the entries. On the other side we have: "May 14, by sundries, referring to some subsidiary record, page 171, $23,000." That was for Eckington dynamo, $2,500; Eckington engine, $2,500; Eckington line for house lighting, $13,000; Eckington line for street lighting, $5,000; total $23,000.

August 1, a credit, "By sundries, page 240, I think it is, $17,000." That was for junior mortgage on real estate at 33rd and K Street, canceled by C. & D. and included in original plant, franchises, building and real estate debit $17,000. That is $17,000 shown on page 6 of my report.

Further detail as to this matter is unnecessary as the Commission restored all of these items which had been eliminated by Mr. Sangster. The testimony covering it extends to page 1007.

Mr. Ham: Outside of the Eckington purchase, how much does that add up for lines, approximately?

Mr. Sangster: Approximately, $6,000.

Mr. Ham: Would you think that fairly represented the cost of 70 miles of wires, poles and lighting fixtures owned by the Potomac

Light & Power Company at the time of its being taken over by the Potomac Electric Power Company?

Mr. Sangster: I could not state what would be the cost. I assumed that this company here shows what, in its opinion, is to be separated from its books representing the physical property acquired by it at the date of its incorporation. We have recourse to other sources of information which are authentic, namely, I will refer you to some reference in connection with that point. I will recall, just for general information, that this plant taken over by the Potomac Electric Power Company was partly situated in Georgetown and partly in the suburb of Eckington. There was no physical connection between the two locations, and the Potomac Electric Power Company immediately set about to get wires across from their new power station in Georgetown so as to supply the Eckington District, and remove or dismantle the old plant that was in existence there, the old power plant. They were immediately stopped by the United States Electric Lighting Company, which sought for an injunction. Various actions were had, which we need not go into at this point. The Committee on the District of Columbia made a report to the Senate of the United States on May 21, 1896. This was the report of Senator Harris, 54th Congress, first session, report 935, which is the report to accompany S-3088. There was a minority report appended to that by Senator J. H. Gallinger, H. C. Hansbrough and Lucian Baker. In the minority report it states:

"Some years ago two young men came from Minnesota and established an electric light plant on the Virginia side of the Potomac, at the Chain Bridge. They erected poles and furnished light to Georgetown, but when they asked for an extension of the plant it was denied to them, and properly so, by the Commissioners. After expending about $75,000 they gave up the struggle, and sold their plants and equipment to the promoters of the company now asking the privileges of this bill, for the trifling sum, so it is alleged and not denied, of $4,000.

"The same parties afterwards purchased an electric light plant at Eckington, owned by Mr. George Teuesdell, one of the commissioners of the District of Columbia, for $3,000, or thereabouts. Thus it will be seen that for $7,500 they came in possession of property that originally cost in the neighborhood of $100,000."

302 Witness states that he does not base his report as to the cost of property of the Potomac Electric Power Company and the companies previously owned upon that minority report accompanying the report of the majority of that committee, but

"Reading that report I accept the figures shown on the books of the Potomac Electric Light Company.

Mr. Bowen: Then you disregard the majority and take the minority report, and state that is all the cost of the property?

Mr. Sangster: No.

The majority report on the same subject reads as follows:

"The committee on the District of Columbia, to whom was referred the bill (S-3088) to authorize the extension of the lines of the Potomac Electric Power Company, have considered the same and reports it back without amendment, and with the recommendation that it pass.

"This company commenced business in the District of Columbia several years ago under a charter from the state — Virginia, and was subsequently chartered under the laws of the District of Columbia. Under certain permits from the commissioners of the District of Columbia it has run lines of wire in the rural districts beyond the limits of the city for the purpose of furnishing electric power to certain electric railways outside of the limits of the city, and for the purpose of lighting the residences in the rural districts beyond the limits of the city. There is at this time, and has been for the last 12 or 14 years, doing business in this city an electric company known as the United States Electric Company. In the year 1888 Congress appropriated certain moneys for lighting the cities of Washington and Georgetown, and authorized the district commissioners to establish electric lights in some of the main streets of the city; and similar appropriations have been made every year since that time.

"Under the authority of these appropriation acts, the district commissioners have contracted with the United States Electric Lighting Company for the electric lighting in the city, and so far as the committee is advised, the performance of the United States Company in furnishing the lights contracted for has been entirely satisfactory, but they have proceeded from year to year under certain contracts made with the District Commissioners for such lighting. In the meantime Congress has prohibited overhead wires in the city and requires that they should be put under ground; the United States Company has provided conduits for the purpose of putting their connecting wires under ground within the limits of the city, but there is no act of Congress, or contract with the District Commissioners under the authority of any act of Congress which secures to this company any exclusive right to any part of the territory within the District, except so far as the requirement to put wires under ground and that under that requirement this company has constructed conduits at its own expense may be constructed as giving this company an equitable right to the territory occupied by its conduits.

"The Potomac Company, as the successor to two formerly independent ownerships, now owns wires, poles, and lighting fixtures covering about 18 miles of street and road in the District of Columbia. The number of miles of wire, measured in single length, thus erected is very nearly 70 miles. These wires are connected to various private residences, stores, etc., in Georgetown, now a part of the City of Washington, and in Eckington, a suburb of Washington, lying just beyond the boundary. The portion of the plant in Eckington is physically separate from that in and about Georgetown, the two sets of wires being now supplied from different power stations. Besides being thus connected to houses for ordinary lighting purposes these

wires are used under contract with the public authorities for lighting some of the streets of the District; namely, Tennallytown road and some of the adjacent streets in the northwest. By private contract a public road in the suburb known as Cleveland Park is also lighted.

"Further, the wires of this company are connected so as to supply all the different street railway companies, namely: The Georgetown and Tennallytown Railway Company (the operation of whose power station for all purposes is controlled by the Potomac Electric Power Company); (2) the Washington and Great Falls Electric Railway; (3) the Washington, Arlington and Falls Church Railway; (4) the Glen Echo Railway; (5) the Tennallytown and Rockville Railway.

303 "These lines, connections, the plants that have been and are now running them, and the new power station, now very nearly complete, represent an investment of about $380,000. Of this total amount the machinery in the new plant alone represents very nearly $150,000.

"The lighting service in Georgetown was established a number of years ago, under a permit from the District Commissioners dated April 20th, 1891."

The witness has no information which would tend to destroy the value of the statement that the property of the company at that time consisted of 70 miles of wire, etc.

Mr. Ham: I would like to ask Mr. Sangster if, exercising the same kind of judgment that you have exercised in making eliminations of our value, that the statements of property account as recorded in the books of the Potomac Light and Power Company fairly represent the cost of property existent at that time as stated in this report to Congress? Assuming the correctness of the report, do you still believe those figures which you refer to as representing the capital account of the Potomac Light & Power Company, and which you admit cover only expenditures for the years 1895 and subsequent thereto, could possibly cover the cost of property mentioned in the report?

The question was objected to and on page 1024 Chairman Kutz ruled "Then your question is proper."

Mr. Ham: I want to ask you again, before replying to that: There was $23,000 mentioned by you which referred to the Eckington purchase.

Mr. Sangster: Yes, sir.

Mr. Ham: There was $17,000, which relates to the purchase of real estate, leaving approximately six or seven thousand dollars for house lighting, street lighting, incandescent lighting, railway lines, conduits, street railway car service, street lighting, lines for house lighting, storage battery at naval observatory, and stationary motor service.

Mr. Sangster: I think some of those are in the $23,000, Mr. Ham.

Mr. Ham: Let us get that clear. I only make this to be about $6,000. How much do you make it? Eliminating the Eckington

purchase, which is $23,000, and eliminating the real estate transaction, which is $17,000, how much is left?

Mr. Sangster: $6,000 for items not referred to as being in Eckington.

Mr. Ham: Would you, in the light of that report, feel that that could possibily represent the total investment in that property in Georgetown?

Mr. Sangster: I think the information we had to go upon at that time is not sufficiently clear, and would not warrant any adjustment being made on the figures shown on the records of the company. That was my estimate.

Mr. Ham: In other words, the figures that are shown by the company clearly indicate that there are no expenditures included in the capital account of the Potomac Electric Power Company prior to 1895?

Mr. Sangster: I would not undertake to come to any such conclusion without further evidence in regard to it.

The witness testified that he had eliminated all of the items from the property account of the company, aggregating $25,000 merely upon the assumption that the property had gone out of existence which assumption was based upon an entry in 1905 showing the company transferred this 500 volt and 2,300 volt line from 4th street to the new line on 5th street taking down all the old poles and wires, and the company shows credits for material displaced and

304 in 1907 shows that it discontinued nine incandescent street lights in Eckington Place, and took down the iron poles, and changed the overhead street and house lighting to underground, at Fourth and T streets; and that in the same year it took down an overhead line in Eckington, due to discontinuance of street lighting, and passed certain credits—we do not know the amount because they are not shown, but it shows that this plant was being displaced.

As heretofore stated this was all subsequently restored by the Commission.

Mr. Ham: Do you mean to say that because an installation was made earlier—we will say, for instance, an installation was made in 1885 and another one was made in 1890, that you would say the one in 1885 must have gone out of existence in case you find some credits which you cannot otherwise identify?

Mr. Sangster: Yes.

Mr. Ham: You think that would be a statement of fact?

Mr. Sangster: I think it would be a fair conclusion, that where we find some displacements that we cannot apply to specific property we may safely conclude that they apply to the oldest property.

Mr. Ham: Why don't you take as credits to this account these displacements that you speak of in 1904, and so on? If we have already eliminated them from our accounts to some extent, why do you ask us to again eliminate the total of them?

Mr. Sangster: The displacements themselves do not amount to very much money, as shown by the records. In other words the

company has not made a true and full statement of its displacements in the books of the company.

Mr. Ham: Do you know that?

Mr. Sangster: Yes.

Mr. Ham: So far as these items are concerned here?

Mr. Sangster: Perhaps not so far as these items are concerned.

Mr. Ham: Do you know it so far as these items here are concerned?

Mr. Sangster: No, but as regards the general overhead system we know that there is not a full statement of the amount of plant displaced in the company's books. The company for a while credited nothing more than the salvage value of all the property displaced. If we were to revise all such credit entries we would find that we have not only the salvage value but the difference between that value and the original cost to add to it, that original cost representing the cost of material and labor, which the company failed to take any account of whatever. We have placed against all these shortcomings this group of old Eckington property, and allowed the whole matter to stand in that way.

Mr. Ham: If this Eckington property or any other of this property is still in existence, your conclusions here that we should eliminate $19,000 are erroneous, are they not?

Mr Sangster: Yes.

Mr. Ham: Do you know that these items that I have referred to are out of existence, as a matter of fact?

Mr. Sangster: I think I have already said so. We have treated it in a general, broad spirit.

305 Mr. Bowen: Then the eliminations are based upon your own conclusions, and not upon facts?

Mr. Sangster: I think they are based upon facts of displacements shown by the company's books. We have of course selected this particular group here, the oldest property, or among the oldest property which the company owned. We do not claim that it may be absolutely accurate, but what we have done is to allow certain shortcomings in the record to stand as they are in other cases. It is a balance of one against another.

306 *Lines* 29, 30, 31, 32, 35.

Mr. Bowen: Mr. Sangster, does your report show the details of the physical property taken over by the United States Electric Lighting Company?

Mr. Sangster: There is nothing from which you could obtain that information directly. Of course, all this property paid for by the U. S. Electric Lighting Company is shown in detail in various places in this report, either as still in existence or as having been eliminated.

Mr. Bowen: How could you tell that by looking at a balance sheet?

Mr. Sangster: We have to study all these figures.

Mr. Bowen: Did you study every operating expense of the U. S.

Electric Lighting Company from the time it was organized until it ended?

Mr. Sangster: No, we did not.

Mr. Bowen: Then how could you make any such statement? To make such a statement would not you have to have studied not only every capital charge, but every operating expense as well?

Mr. Sangster: No, that would not be necessary.

Mr. Bowen: Why?

Mr. Sangster: We have a plant account which includes all expenditures upon plant.

Mr. Bowen: Suppose some of those things were borne by operating expenses? Would you- plant account still show it as a capital charge?

Mr. Sangster: The original installation would be shown in the plant.

Mr. Bowen: But suppose it was not so charged, and was borne by operating expenses, how would you develop the fact if you had never examined those operating expenses?

Mr. Sangster: I think there is sufficient intelligence in the book keeping department of the United States Electric Lighting Company not to make any gross misstatement of that kind to any great extent.

Mr. Bowen: You are not willing to take the books for what they are worth as to all things?

Mr. Sangster: No, sir.

Mr. Bowen: Why do you take them as to some things and exclude them as to others?

Chairman Kutz: The theory is that the books are correct unless there is evidence to show they are incorrect. If there are incorrect entries that are not brought to the attention of the Commission's examiners it is proper for the company to bring them to the attention of the Commission. We did our best to reach a conclusion and eliminated every item that appeared to be improper, and never hesitated to add an item that appeared to belong to that account, if it was brought to our attention.

307 *Line 7.*

Mr. Bowen: Mr. Sangster, if you have never examined into the extent of the operation of the properties owned and controlled by the Heisler Electric Lighting Company and the Brush-Swan Electric Company, which were taken over by the United States Electric Lighting Company, do you admit that your report, at least to this extent, fails to show the total cost of the property of the Potomac Electric Power Company?

Mr. Sangster: We have accepted the plant account as being prima facie correct unless we could find evidence to the contrary. Just what all of the vast number of different items that these plant accounts contain, of course I cannot recollect now. Some of the old entries are obscure as to where the property came from. I do not recall these names that they mention here. But they certainly have a history of the plant account of the United States Electric Lighting

Company. If they have not included anything in that account of course we would like to know it.

308 *Line 8.*

Mr. Bowen: Are you able to state as a matter of fact that you have included in the costs of property, the very property that was taken over at that time by the Potomac Electric Power Company from the United States Electric Lighting Company?

Mr. Sangster: We have all the property of the United States Electric Lighting Company.

Mr. Bowen: Do you know what property was taken over at that time by the issue of that stock?

Mr. Sangster: No, sir.

Mr. Bowen: You cannot identify it?

Mr. Sangster: No, sir.

Mr. Bowen: You do not know where it was located?

Mr. Sangster: No, sir.

Mr. Bowen: You don't know what became of it afterwards?

Mr. Sangster: No, sir.

Mr. Bowen: And you do not know whether it is in existence today or not?

Mr. Sangster: Not this particular, specific item of property.

Mr. Bowen: How did you treat the property that was acquired at that time in your account, or in your report? What did you do with it? How do you deal with that property they acquired at that time?

Mr. Sangster: This is shown separately in the report.

Mr. Ham: You exclude it from our capital account, do you not?

Mr. Sangster: It is shown as payment for property rights and franchises.

Mr. Bowen: Do you take it away from the capital account or not?

Mr. Sangster: No, sir; I give it its specific description, as given here.

309 *Line 7.*

Mr. Bowen: As a matter of fact, how do those items originall-charged to capital stand in your report? Is the company given credit for them as capital charges, or are they eliminated and deducted from your report?

Mr. Sangster: They are stated separately.

Commissioner Brownlow: Upon what ground was it eliminated from plant account?

Mr. Sangster: I use the term "eliminated" strictly in the sense that it was originally shown in the plant account and subsequently removed.

Commissioner Brownlow: By the company?

Mr. Sangster: No, sir, in these figures, and I stated that they are removed in that way. The total amount of plant that was removed, as shown on the top of the page, amounting to $389,000, roughly.

That is what we would properly call eliminated plant. This $200,000 is distinctly stated to represent property rights and franchises of an old company.

Mr. Bowen: Yet you do not know what physical property was taken over from that company?

Mr. Sangster: That may be.

Mr. Bowen: Yet you transfer from plant account property that was acquired by the issue of this stock.

Mr. Sangster: No, sir.

Mr. Bowen: What do you do, then?

Mr. Sangster: I simply show it in a summary of the plant account.

Mr. Bowen: Do you not eliminate, in the end, directly or indirectly, a portion of it?

Mr. Sangster: * * * I was going to say that I had not taken it out of the company's plant account in the sense that you mean, if I understand you correctly. I have stated what the company's plant account now contains. It contains a certain amount of property which we find amounts to, roughly speaking, $7,900,000—still in existence. Further than that it also contains the sum of $389,000, which I believe, to the best of my knowledge and belief, refers to property which is not now in existence; and it further contains this $200,000 which was given for property, rights and franchises of one of the original companies. * * * It is for the Commission to decide what they wish to do with this item.

Mr. Bowen: Do you claim that it should go out or back to capital account?

Mr. Sangster: We have not sufficient information in regard to the item.

Witness did not know the specific units which may be in the plant today, that belonged to any of these old companies,
310 neither the Potomac Light and Power Company of the District of Columbia or of the company of the same name, a Virginia corporation.

Mr. Bowen: If you say you do not know what property was controlled by them or owned by them, or was taken over by the Potomac Electric Power Company, or any of its predecessor companies, then your report, to the extent that you have not covered these companies, must be modified or supplemented?

Mr. Sangster: Certainly. If our report fails to cover those companies, then the books of the company are incomplete to that extent.

Chairman Kutz: He has admitted that if the books of the company are inaccurate or incomplete his analysis is correspondingly incomplete.

Mr. Barbour: We admit that our books are incomplete to some extent.

Chairman Kutz: We hope that you will supply the deficiency before we get through with this hearing, * * * whether it amounts to one million dollars or five million dollars.

The witness has not conformed to the classification of accounts prescribed by the Interstate Commerce Commission in order that

they could group the various items of expenditures as nearly as possible under some classification which would distinguish these various items one from the other.

Neither has he conformed to the classification of accounts used by Mr. Pillsbury, because "it was impossible to make that classification from the manner in which the books of the company have been kept. The company only commenced to keep its records along the line laid down in that classification sometime in 1909, but after that date the accounts were kept in a much more generalized manner, and naturally we have to follow the classifications we found in the records, as nearly as possible." But admitted that the records did not have any such classification as he had, neither then nor at any time.

Mr. Sangster: This classification here has been adopted merely to try and show the continuity between the old systems kept by the company and the Interstate Commerce Commission system now in use.

Mr. Barbour: If it does not conform to either how does it show a continuity?

Chairman Kutz: Does it represent a compromise between the various methods?

311 Mr. Sangster: Yes, you might say it is an endeaavor to get down between them.

Mr. Bowen: Do you admit that it is not possible to compare the total amounts shown in your report with those shown in the report of Mr. Pillsbury?

Mr. Sangster: I do not know the method of details under which Mr. Pillsbury prepared his report.

Chairman Kutz: Mr. Pillsbury's report is an estimate of the cost of reproduction.

Mr. Ham: On what classification?

Mr. Sangster: On the Interstate Commerce Commission classification.

Mr. Bowen: And is his own classification.

Chairman Kutz: His is an analysis of the original cost, as shown by your books.

Mr. Barbour: If it is the same classification Mr. Pillsbury adopted we would have them on a comparable basis. We asked him whether his figures conformed to Mr. Pillsbury's estimate.

Chairman Kutz: We do not feel that there is any obligation to make the two on the same classification.

Mr. Barbour: The company is required to observe the orders of the Interstate Commerce Commission, by the orders of this Commission. Why should an accountant undertake to set up a theory of his own?

Mr. Sangster: Because the company does not show the various items of property under Interstate Commerce Commission classification.

Chairman Kutz: It is impossible to do that with reference to the old records.

Mr. Barbour: Well, I think, Mr. Chairman, there will be others to dispute that.

Mr. Syme: So it shows all the property and the cost, what difference does it make which classification is used, except for your own convenience?

Mr. Sangster: But your books do not show the classification of property under the Interstate Commerce Commission instructions. You have only commenced to use that classification since 1909, or something about then.

Mr. Bowen: What did they show prior to that time?

Mr. Sangster: They showed various accounts, various classifications. We have attempted to make some kind of a classification which will apply over the whole period.

Mr. Ham: The capital accounts for electric corporations within the District of Columbia are specified or listed on pages 17 and 18 of the printed classification. Running thru that list of capital accounts, will you please state what, if any, are not included in
312 your expenditures listed on page 13. Are the items there listed included an page 13 of your report?

Mr. Sangster: No. We have here #301, organization, which is not included or represented in the summary on page 13; also E-302, franchises; E-303, patent rights; E-304, other intangible electric capital; E-334, engineering and superintendence, is not fully represented in this table; neither is E-335, law expenditures during construction; E-336, injuries during construction; E-337, taxes during construction; E-338, miscellaneous construction expenditures; E-339, interest during construction; E-340, land in other departments; E-341, franchises in other departments; E-342, patent rights in other departments; E-344, tangible capital in other departments.

Mr. Ham: None of these items which are included in the classification of accounts of the Interstate Commerce Commission as proper charges to plant and equipment are included on your page 13?

Mr. Sangster: They are either not represented or not fully represented.

Mr. Ham: There is only one that you mentioned as not being fully represented. That was E-334. You said engineering and superintendence was not fully represented.

Mr. Sangster: The same would apply to interest during construction and law expenses and organization. They are not fully represented. There are some expenditures here that would come under those classifications.

Mr. Ham: While we are on it, what items are there that come under these classifications here? I see engineering and superintendence listed on the side of the page as $95,637.40, but if we limit your answer to the column headed "general expenditures" would you then say that these items are entirely excluded?

Mr. Sangster: Yes.

Mr. Syme: Is there any necessity for excluding them?

Mr. Sangster: Where there are expenditures coming under these heads they might properly be included in the plant account. There is no obligation one way or another. The company can treat them

as they feel disposed. They may charge off certain items to operating expenses.

Mr. Ham: Well, is there not an obligation on the part of the company to keep its accounts in accordance with the Interstate Commerce Commission classifications?

Mr. Sangster: They are expected to, yes, sir.

Mr. Ham: Therefore it is proper to include in capital account, according to the classification of the Interstate Commerce Commission, items mentioned in these accounts which you say are not included on page 13 of your report.

Mr. Sangster: Oh, yes. It would have involved a good deal of labor and time to investigate some of the items which would come down and be covered by such items, but I would not have felt that the result obtained would have been sufficiently accurate as a statement on which the Commission would base a conclusion. In other words, rather than attempt to go into the question covered by these items, I leave the matter entirely to be dealt with in a broad manner by making certain allowances, for instance, for overhead charges.

Mr. Ham: I think Mr. Sangster means that the summary
313 contained in the heading of general expenditures on page 13 of his report does not include all of the items which are properly chargeable to plant and equipment account according to the classification of accounts of the Interstate Commerce Commission.

Mr. Sangster: Yes, and we have indicated such accounts as would cover items which are not included here.

Mr. Bowen: They ought to be added to your report, then—items that are excluded.

Mr. Sangster: Yes.

Mr. Bowen: According to the Interstate Commerce Commission classification, they should be supplemented to your report?

Mr. Sangster: Yes.

Chairman Kutz: Mr. Bowen, let me suggest that that is the function of the Commission. Mr. Sangster's work was limited to an analysis of the company's books. Now, if there is anything that should have been added to the plant account or capital account which was not, if the matter is presented to the Commission it will be taken under consideration, but it is not correct to say that Mr. Sangster should have added those things to his report.

Mr. Sangster: I stated that the matter was left to the discretion of the Commission; that those items are not fully represented.

Chairman Kutz: It is as complete as the company's records; it is coextensive with those records, but does not go beyond them.

Mr. Ham: I do not think Mr. Sangster meant that, because I carefully limited it to the column on page 13 headed "general expenditures." That does exclude certain items which are already on the company's book, you see, that figure, so that I was trying to get this where there could be no difference of opinion between Mr. Sangster and ourselves that his totals, as stated in that column, represent the elimination of all expenditures, whether on the books or not, reflected in those accounts listed as E-301, E-302, E-303. I think that is what

Mr. Sangster and I are in accord on. That is the way I have understood it.

Mr. Sangster: We have agreed that that column, general expenditures (I object to the use of the word "elimination") leaves out of account any other items which might be considered by the Commission, whether on the books of the company or not.

Mr. Bowen: Mr. Sangster, does your report show the total amount of investment of the Potomac Electric Power Company?

Mr. Sangster: It shows the total investment in plant.

Mr. Bowen: Will you kindly turn to that report and state what is the total amount of investment which you find from examination of the books of the company?

Mr. Syme: The total amount of investment in plant?

Mr. Bowen: No, sir, total amount of investment.

Mr. Sangster: Investment in plant to June 30, 1914, is stated in the company's account as $11,529,173.67.

314 Mr. Bowen: Upon what theory have you undertaken to make certain eliminations and exclusions therefrom?

Mr. Sangster: I have made a division of the various items included in this eleven and a half million dollars to represent the total expenditures on plant and equipment, including such items as the company has itself charged to plant, for engineering and superintendence, interest and other overhead charges. I have shown the amount which we have ascertained to represent property sold, scrapped or abandoned. I have shown the item of $200,000 which was paid in stock for the franchises and property and rights of the United States Electric Lighting Company of New York. I also show the item charged for franchises, etc. of the Potomac Electric Power Company in 1896, for the franchises of the United States Electric Lighting Company, in 1902, bought by the Potomac Electric Lighting Company; for such organization and other expenses as the Potomac Electric Power Company has charged to its plant account; for such interest on bonds as it has charged to bonds, and for discount on bonds, and for other services and expenditures in connection with the trust deed for the bondholders, and other matters, and for sundry interests charged to cable account. These eliminations are based largely on the entries made in the books showing the displacement of plant.

Mr. Bowen: Then I asked you if that non-existence of property is the only reason, in your mind, or is a sufficient reason in your mind, for an exclusion of elimination.

Mr. Sangster: Yes.

Mr. Bowen: Is it a fair thing to say that an exclusion or elimination should be made merely from the non-existence of property, or from your failure to locate it as being in existence, without an examination of operating expenses to see whether that property has been restored or replaced from operating expenses? Do you get the question?

Mr. Sangster: Yes. The company's records are kept in such a way that they show the displacements of plant.

Mr. Bowen: Did you make an examination of the operating expenses of the company to determine, in cases where in your opinion

the property did not exist, whether that same property or similar in kind had been restored from operating expenses?

Mr. Sangster: We did not make a detailed examination of the operation expenses or maintenance charges in the company's account. We had prepared a summary of the expenditures charged to renewals, and wherever there was any expenditure of a material amount we investigated that year.

Mr. Bowen: Let us get at it in this way. Where you have, in your opinion, made up your mind there was no property in existence, have you endeavored, through an examination of the operating expenses, to see whether that item, identical or similar in kind, has not been restored through operation.

Mr. Sangster: We may not have used that exclusive method of making sure, but we used every precaution to safeguard the company in that respect. It is conceivable that property may have been originally installed and the expenditure charged to plant and that subsequently it removed or, rather, repaired or renewed to a certain extent, and the cost of renewal charged to the renewal account.

Now, we have gone over the renewal accounts of the company, not in detail, but we have in a general way watched these expenditures from year to year, and where there seemed to be any extraordinary outlays or disbursements, we investigated these items and re-
315 stored the property or substituted the later expenditure for the original.

Mr. Bowen: Then you have not undertaken, in detail, to make sure that property which, in your opinion, does not exist, has not been restored through operation.

Mr. Sangster: I believe that we have made sufficiently sure to see that there is not anything present of that nature. If there is, we allow it to be offset by other items of a contrary nature.

Mr. Bowen: Are you willing to state, then, as a matter of fact, that where you had made an elimination because you could not find the property existent that you further investigated the operating expenses of the company to see that the item which you could not find existent had not been restored or replaced through operation.

Mr. Sangster: If you will take one specific item and ask that question, I should say no.

Mr. Bowen: Well, that is what I am asking—the precise question.

When asked his authority for this method, he said:

Paragraph 6 requires the Commission to ascertain as soon and as nearly as practicable the amount of money expended in the construction and equipment of every utility, including the amount of money expended to procure right of way.

Mr. Barbour: Mr. Sangster, with reference to this question of eliminations, I understand that your eliminations are based entirely upon some book entry or some evidence that you gather from the books. Am I correct in that?

Mr. Sangster: In the great majority of cases, yes.

Mr. Barbour: Have you made it a practice to go into the field

and verify your impression from the books, of whether or not a given property was in existence or out of existence?

Mr. Sangster: In some cases we secured information in that way.

Mr. Barbour: Have you made that theory a practice? Have you verified your conclusions by going into the field to ascertain whether or not a given piece of property is in existence?

Mr. Sangster: That I have eliminated?

Mr. Barbour: Yes.

Mr. Sangster: No.

Witness testified on cross-examination that he intended to limit his findings to physical and tangible property.

316 *Line* 25 (*Graceland*).

Mr. Bowen: Why did you exclude the Graceland Cemetery property?

Mr. Sangster: That property is not used for electric operations.

Mr. Bowen: Why did you exclude it from the plant account?

Mr. Sangster: It never was in the plant account.

Mr. Bowen: Why do you exclude it from the net cost of property?

Mr. Sangster: I have not excluded it at all.

Mr. Bowen: What have you done with it?

Mr. Sangster: I leave it where the company has it, as an investment.

Mr. Ham: Do you know why the company has it where it is?

Mr. Sangster: I think they look upon the purchase as an investment.

Mr. Ham: Do you know whether having it as an investment is in accordance with the orders of the Interstate Commerce Commission or not?

Mr. Sangster: I believe the company might have included it in one of these Interstate Commerce Commission classification accounts, if I might refer to it.

Mr. Ham: This honorable commission has adopted the classification of accounts of the Interstate Commerce Commission, and regardless of our own judgment in the matter, the instructions contained in this classification are clear. In view of this instruction contained in the classification of accounts which I will now read, as follows: "Investments. This account includes advances to proprietary, affiliated or controlled companies. This account should show all cash advances made to proprietary, affiliated or controlled companies to pay for construction, equipment, additions and betterments. When the companies to which said advances are made issue other securities or notes in payment thereof, the cost of such notes or advances of the accounting corporation should be transferred from this account to account No. 5, Securities Owned. Other permanent investments. Charge to this account the cost of the corporation's title to any property acquired not for use in present operations, but as a means for obtaining or exercising control over other corporations or over income to be derived from them, or for a rise in value

or in anticipation of future operations," and admitting that the property is now used, could the company with propriety have charged it or included it in any account but "Investment"?

Mr. Sangster: I would not think that the "Investments" was improper.

Mr. Bowen: You testified that according to your methods of accounting the Company had gained thereby in the matter of certain property. Will you state the amount thereof, and how do you account for the same.

317 Mr. Sangster: In exhibit G of Section 17 I show that we added to the plant account $42,017.59. The items are generally $27,393.68 for underground conduit was charged to special construction, I think, or some construction account, in 1898, or thereabouts, in connection with the displacement of the overhead system—charged to reconstruction. The $14,893.91 is for general equipment, automobiles, horses and vehicles, etc., that were not charged to plant, but which we found in an inventory of these items.

Mr. Bowen: Mr. Sangster, you place the original installation cost of the plant A at $74,374.28; you take therefrom proceeds of sale, $2,722.54. How have you treated the balance of this installation cost?

Mr. Sangster: The balance is eliminated from plant account. This power station A was dismantled. All the machinery in that station was dismantled, I think, in 1899; that he got this information from the records of the company; he believed there was a minute to that effect, but he cannot refer to this specific minute; will try to do so at a later date, and on the following day he made the following explanation:

"In September, 1907, electric plant is credited with a certain sum. I do not have that sum here, but the reading of the entry is, "Removing all unnecessary and unused cable at station "A", due to dismantling of station." That is in September, 1907."

The amount of this credit was $723.65.

Mr. Ham: Mr. Sangster, will you again refer to the items concerning which you testified yesterday as forming the basis of your conclusions that the lines in Eckington had been abandoned? Have you that statement now before you?

Mr. Sangster: I think the job numbers would be sufficient for your purpose.

Mr. Ham: If you can give the job numbers we will send for the job cards.

Mr. Sangster: The first item was job card 551, job card 676, 833, 936 and 959.

Mr. Ham: Are those for all the items?

Mr. Sangster: That is my recollection. I was reading as to the same items I was giving you yesterday.

Mr. Ham: You testified yesterday that so far as you knew, those were the only items that justified you in excluding the Eckington

lines and the other lines mentioned on the same page of your eliminations?

Mr. Sangster: No, Mr. Ham. I clearly stated that those were some entries illustrative of displacements of plant in Eckington. There might be many others, but we could only determine that fact by going through these job cards again.

Mr. Ham: We would like to have you now refer to all of the items that influenced you at all in eliminating from our property accounts the overhead lines in Eckington and elsewhere.

Mr. Sangster: I am very sorry, but that would be impracticable.

Mr. Bowen: Why?

318 Mr. Sangster: Mr. Ham has asked me to refer to all the items which had any bearing or which influenced me in the elimination of that Eckington plant.

Mr. Bowen: And what was your answer?

Mr. Sangster: I will say in a general way, as I think I said yesterday, that to resuscitate, so to speak, or bring back again all the facts and considerations, or the mental processes which we went through as carefully and conscientiously as we possibly could before we did make an elimination would be almost an utter impossibility. We were confining our attention to eliminations of cable, or at least items which we had credited under the cable accounts, and they referred exclusively to Eckington. We selected these Eckington entries as having been the original overhead lines, or some of the original overhead lines, of the Potomac Electric Power Company, acquired by that company. And we found that a great many displacements of plant had taken place in the overhead lines from time to time, and that these credits from the reading did not represent the full original cost of the plant displaced, and that if we had obtained the benefit of the officers of the company we could possibly have arrived at some fair estimate of the original cost of all that overhead construction which was displaced. We were, of course, denied that cooperation, and we had to use our best judgment as to how to treat the whole question in a broad way. We selected, as I say, these Eckington entries. There is still a question in my mind that the figures applying to these Eckington items represent real cost. I think they are valuations made for the purpose of bringing that plant into the books of the Potomac Electric Power Company. Whether it represents the actual cost of course is an open question, but we think we have dealt fairly with the whole situation if we simply eliminate the oldest property that was taken over in these Eckington lines and the Georgetown lines and allow the rest of the property to go in, whether it really ought all to stay in or not. If we concentrate, of course, on these Eckington eliminations, we cannot give you specific and fully satisfactory reasons for having taken those particular items out. You can only see the treatment by these general considerations.

Chairman Kutz: In other words, you could not produce at this hearing every entry on the books that influenced your final conclusion without doing over again the work you have done in the last two years?

Mr. Sangster: Yes, sir; and recollecting and refreshing my memory completely as to all the consultations which I had with my assistants, and the information which they submitted to me.

Mr Syme: Isn't it a fact if there is any property in existence which you might have improperly eliminated, it is within the knowledge of the company, and they can supply it instantly?

Mr. Sangster: I should think so.

At this stage the respondent company renewed the motion to exclude the evidence for the reason that he cannot give us reasons upon which he bases his conclusions. It was overruled and an exception noted.

319 Mr. Bowen: What do you mean by "It is still an open question." What is an open question.

Mr. Sangster: I was referring to these original Eckington items.

Mr. Bowen: What is open about them?

Mr. Sangster: I say, in my mind the fact is not established yet.

Mr. Bowen: What fact is not established?

Mr. Sangster: The fact is not established yet as to the actual cost of the properties taken over by the Potomac Electric Power Company and spread on their ledger, these several items which Mr. Ham was questioning me about yesterday, the Eckington line for house lighting, street car service and several others. We have not used any single basis for making the eliminations. We have not used any single item, for instance. We have, for example, a number of items showing displacements of some plant here. We may come across, in another direction altogether, in connection with the installation of other plants, facts tending to show that that plant was eliminated.

Mr. Bowen: Then you pick out a few items here and there and say because of finding them that you exclude and eliminate all the lines of which they might have formed a part? Is that the practical deduction to make from your statement?

Mr. Sangster: No, I should say that was not a quite a fair construction, Mr. Bowen. I should say the fair construction was this, that having encountered and passed over a number of items all dealing with Eckington Plant, we come to the conclusion that all the plant represented by the original transaction of the Potomac Electric Power Company must be displaced at the present time.

Mr. Bowen: Because of finding a few items that seem to show that they have gone out of existence?

Mr. Sangster: We do not admit that there are a few items.

Mr. Bowen: We ask you to show right now any other items which you can bearing upon the elimination in question.

Mr. Sangster: It say it is a question of time.

Mr. Barbour: All you can right now. Can you give any more now?

Mr. Sangster: No, I should not undertake to do that.

Mr. Barbour: Because you cannot or because you do not want to?

Mr. Sangster: Pardon me. I have no desire to be unwilling. We will look through our papers.

Mr. Barbour: Just give us all you can now.

Mr. Sangster: At this moment?

Mr. Barbour: Yes.

Mr. Sangster: Very well.

320 Mr. Bowen: When will you furnish the balance?

Chairman Kutz: Mr. Bowen, I would like to repeat what has been said several times, that it is impossible and impracticable to do over again the work of the last two years. This man was employed by the Commission as an expert to make an examination of the books of this company. As the result of that examination he believes that there is strong presumptive evidence warranting the elimination of certain items from the plant account. He is giving his testimony as an expert witness in this case.

Mr. Barbour: Mr. Chairman, the basis for all expert testimony, as I understand it, is the reasons and the foundations that the expert has for basing his opinions upon. How can we get the value of his testimony and weigh it, or have anything to weigh it by, unless we are furnished with some foundation that he had upon which he has based his conclusions?

Commissioner Brownlow: That would merely require going over all of the work of the last two years.

Mr. Syme: And giving you information which is in your own possession and within your own knowledge, if you care to use it.

Mr. Barbour: We are entitled to know upon what he has based his conclusions.

Chairman Kutz: We will give the company an opportunity to show that the property eliminated is still in service.

Mr. Barbour: And give us an opportunity also to find out what reasons he is basing his conclusions on. That is what we are entitled to here in the way of evidence, I take it.

At this point, the respondent again moved to exclude the testimony of this witness for his refusal or failure to furnish us the detailed or supporting data for these eliminations of the Eckington property, which motion was overruled and an exception noted.

The witness then undertook to read from the job cards upon showing the data upon which he had concluded all of the Eckington construction had been removed:

"Job No. 551. Description: Taking down overhead lines, poles and street lights in Eckington and re-installing same in new location due to excavation by Baltimore & Ohio Railroad Company."

Then follows the dates and references to vouchers, with the amounts against each reference. The information given is, "1904. February 29, journal 288-82 (that figure 82 refers to the account charged) $15.08.

"Journal 288-82, $84.13.
"Voucher Register 103-82, $3.60.
"Journal 290-82, credit $13.67.
"Journal 290-93, credit of 98 cents.

"Journal 291-82, credit $54.90.
321 "Journal 294-82, $4.32.
"Totals for month a charge of $37.58.
"March 31st, Journal No. 32-82, $56.85.
"March 17, cash book 373-82, credit of $1.20.
"Total for March, $55.65.
"April 30, Journal 16-82, charge of $50.86.
"The same date, Journal 17-82, $41.38.
"The same date, 18-82, $114.47.
"The same date, Journal No. 19-82, credit $14.88.
"The same date, Journal 21-82, credit of $6.
"Total for April, $185.83.
"Forward to Card No. 2, $279.06."

Continuing:

"May 31, Journal 32, $3.78.
"Journal 33, $1.04.
"Voucher Register 117, $3.34.
"118, $3.69.
"Journal 41, takes up the total, $11.85.
"For May, total of $290.91 for job 551."

Job Card 843—"Discontinuing nine incandescent street lights in Eckington. Also taking down iron poles as designated by District inspector."

Then there is an asterisk, with a note, "District is to pay $3 per light. Bill August 7—$27 to D. of C."

Then some red figures.

1907, April 30, Jnl. 144, a credit of $1.56. The same reference, a credit of $18.76.

Jnl. 145, a charge of $2.60.

Voucher register, no particular reference, $24.20—a net charge of $6.48 for April.

May 31, voucher register, $2.50.

September 30, Jnl. 266, a credit of $144—

A net credit for Job 843, $135.02.

Job No. 936—"Changing overhead street lighting and house lighting wires to underground at 4th and T Streets, Northeast."

1907—October 31, Jnl. 288, $390.

Jnl. 289, 38 cents.

Voucher register, $29.26.

Jnl. 289, a credit of $20.96.

Jnl. 291, a credit of $6.90.

A total of $5.67 net charge.

December 31, Jnl. 329, 45 cents.

Total for Job No. 936, $6.12.

Job No. 959, "Taking down overhead lines in Eckington, due to discontinuance of street lighting."

1907—Novemb er 30, Jnl. 304, $1.82.

Jnl. 306, 24 cents.

Jnl. 307, a credit of $33.04.

Same folio, a credit of $72.62.
Voucher register, a charge of $13.65.
Net credit for November, $89.95.
December 31—voucher register, $56.98.
Jnl. 325, $7.15.
Jnl. 327, a credit of $37.89.
Jnl. 326, a credit of $336.77.
Net credit for December, $310.53.
1908—February 29, Jnl. 369, a charge of $3.51.
Jnl. 371, a credit of $306.05.
February 29, Jnl. 370, a credit of $1.28.
Voucher register, a charge of $24.30.
Same folio, $1.05.
Total for the month, a credit of $278.47.
April 30, voucher register, a charge of $21.70.
322 Jnl. 29, $2.73.
Same folio, a credit of $1.60.
Jnl. 30, a credit of $256.35.
Total for the month, a credit of $233.52.
May 31, voucher register, a charge of $3.
That appears to be all on this card."

Mr. Ham: Job No. 551, "Taking down overhead lines, poles and street lights in Eckington, and re-installing same in new location, due to excavation by B. & O. Railroad Company"—Do you think that indicates any abandonment of property, and if so, how much?

Mr. Sangster: I think it indicates the abandonment of property in Eckington; the amount I am not prepared to say.

Mr. Ham: Job No. 676, $136.95, covers the transfer of 550-volt cable from an old pole line to a new pole line in 1905. Do you know whether this line has any connection or is a part of the property mentioned in your list of eliminations, or was it installed subsequently to 1896?

Mr. Sangster: Of that I have no positive knowledge.

Mr. Ham: A 550-volt line is used for what purpose?

Mr. Sangster: I do not know what a 550-volt line would be used for at that time.

Mr. Ham: You are not sufficiently informed about the electric lighting business to know for what purpose a 550-volt line is used?

Mr. Sangster: A 550-volt line is a direct current line, as I believe, and would probably be used for street railway service.

Mr. Ham: Would it be used for street lighting service?

Mr. Sangster: Yes, it might be.

Mr. Ham: It might be used for street lighting service?

Mr. Sangster: Yes.

Mr. Ham: You are positive of that?

Mr. Sangster: Not quite positive. So far as I know of the electric lighting business, that is my belief.

Mr. Ham: Included in that Job No. 676 was some 2,300-volt line from old line on 4th street to the new pole line on 5th street. Was that a part of the installation of the company in 1896?

Mr. Sangster: Of that I have no positive knowledge.

Mr. Ham: Would your knowledge of the electric lighting business and the apparatus they had in service in 1896 give you any light as to whether this could or could not have been a part of their plant at that time?

Mr. Sangster: When these various matters came up for consideration, Mr. Ham, I was not entirely dependent upon my own knowledge. I sought various sources of information and informed myself along different lines. Numerous questions would be asked, but as to whether these particular points were gone into I could not now say.

Mr. Bowen: What sources of information did you seek and get?

323 Mr. Sangster: Information from my own assistants as to what they had learned.

Mr. Bowen: Who was he?

Mr. Sangster: Assistants.

Mr. Bowen: Who were they?

Mr. Sangster: Several. Do you mean that I have to name them?

Mr. Bowen: Yes, I would like to know who they are, just to make sure that we understand you.

Mr. Sangster: There were a good many assistants on the Potomac Electric Power Company investigation.

Mr. Bowen: Referring to this particular item that Mr. Ham is addressing you on.

Mr. Sangster: Then I could not name the assistants definitely.

Mr. Barbour: Do you know that you got any assistance from anybody as to this item?

Mr. Sangster: It would be difficult to answer that question and feel that I was sure of my ground.

Mr. Bowen: Do you know for what this line was used?

Mr. Sangster: I do not know now, no sir. * * * I wish to make a statement at this point. I am having some difficulty in answering certain of these questions, and I was about to add some further statement that my sources of information were not confined to my own assistants. Of course I had various conferences with members of the Engineering Department, and when we were in doubt as regards technicalities or physical description, we generally sought aid in that direction.

Mr. Bowen: From whom did you get assistance as to this particular point that you are testifying to?

Mr. Sangster: That I am unable to say, as to that particular point.

Mr. Barbour: Are you able to say that you got information or advice as to this particular item from anybody?

Mr. Sangster: I am not able now to recollect. * * * If we had had an opportunity to discuss with the engineers of the company, I think we could have obtained more information in regard to these specific items.

Mr. Bowen: Mr. Sangster, will you turn to page 1 of your report, at the bottom of it, and read what you say as to the co-operation given by the company and its employes.

Mr. Sangster: The report states:

"Before proceeding to the consideration of the foregoing it should be stated that every facility was afforded by the company's employes, in the production of the various records requested, which were somewhat numerous, during the course of the investigation."

Mr. Bowen: You do not wish to retract that statement, do you?

324 Mr. Sangster: Not in the slightest.

Mr. Barbour: Did you ever make a request of any employe or any officer of the company for any cooperation that you did not receive?

Mr. Sangster: We did not seek to cooperate with the officers or officials of the company, in view of my understanding of the company's position which was based on what Mr. Ham told him.

Mr. Ham: Did you know the voltage that was used in the Eckington system at that time?

Mr. Sangster: No, sir.

Mr. Ham: You do not know that the items mentioned on Job 676, transferring the 500-volt and 2,300-volt line from old pole line on 4th street to new pole line on 5th street, have any connection whatever with the items which you have eliminated from our property account?

Mr. Sangster: No positive knowledge.

Mr. Ham (reading): Job No. 843 is for discontinuing nine incandescent street lights. At the time of closing that out, will you read from the back of the card what accounts, if any, were credited and debited?

Mr. Sangster: I will read this note on the back of the card:

"September, 1907. Distribution. (See detailed analysis on file.) Charge operating expenses (42) (Labor and expenses) $47.26.

"Credit construction (82) (cable and wire) $182.28"—the last figures being in red.

Mr. Ham: Does that appear as a credit or a deduction from the amount that you now charge off for this original investment?

Mr. Sangster: What was the amount there, Mr. Ham?

Mr. Ham: $182.28.

Mr. Sangster: No, it was not included in any of these credits.

Mr. Ham: In other words, after crediting our capital account with $182.28, covering a partial dismantlement of this system in Eckington, you now exclude the entire original cost of the Eckington plant?

Mr. Sangster: That would be a correct conclusion if we were positive that that item referred to the plant which is represented in these items here in 1897.

Mr. Ham (reading): Job No. 936 is changing overhead street lighting and house lighting wires to underground at 4th and T streets, northeast, $6.12. What if any connection has that with the installation that you have eliminated in Eckington?

Mr. Sangster: Might I see the card?

Mr. Ham: Certainly.

Mr. Sangster: There is a possibility that this credit for construction refers to old property in Eckington.

325 Mr. Ham: Will you read what items were charged and what were credited on that job?

Mr. Sangster: Credit construction, December 31, 1907, $38.92. Charge operating expenses (42) $45.04.

Mr. Ham: Is the same true in this regard, that after the company has itself charged off for this partial dismantlement $38.92, that you now eliminate the entire cost of the original installation in Eckington?

Mr. Sangster: Yes, that is true.

Mr. Ham: Job No. 959, taking down overhead lines in Eckington, due to discontinuance of street lighting. Will you please read the items charged and credited when that job was closed out?

Mr. Sangster: I will read the figures given here——

Mr. Ham: If you question these figures we would like to have you go right straight to the books.

Mr. Sangster: No. I think the principle you are establishing will not be affected.

December 31, 1907—Credit Construction, $174.22. Charge operating expenses, $84.27.

January 31, 1908, credit construction, $447.91. Charge operating expenses, $137.38.

March 31, 1908, credit construction, $2.80 and, again, $308.73. Charge operating expenses, $33.06.

May 31, 1908, distribution; charge account 46—$26.31. Credit account 82, $259.83.

June 30, 1908, charge account 46, $3.

Mr. Ham: The same is likewise true here that after the company has itself charged off construction to the amount stated, as you have read it, that you now exclude the entire original cost of this plant?

Mr. Sangster: Yes.

Mr. Ham: The company then, according to these cards that you have read from, has charged off through its capital account for the portions of the plant which were dismantled, so far as they are stated in the accounts on which you base your contention that that entire installation should be eliminated?

Mr. Sangster: There is a point there—of course they have charged it off so far as it is stated. But just right there they have charged it off to a certain extent. Prior to 1902 there were no displacements of overhead lines shown in the company's records of any amount.

Mr. Ham: Without regard to any other property of the company, but simply with regard to the property of the company mentioned at Eckington, and similar pole lines and conduits, you admit that there is an error in having charged off the entire property in your report, when all that you have called attention to as being abandoned has already been charged off by the company?

Mr. Sangster: That asks an admission of an error which I do not admit. If you take these two items I will readily state that there is a duplication of the deduction. * * * I have deducted twice in this particular case. * * * Having in mind that I have allowed a great many other charges to remain in un-

326 questioned.

Mr. Ham: That of course is something you have not testified to as yet.

Mr. Bowen: Mr. Sangster, between now and the closing of your cross examination we wish to afford you every opportunity to produce any other items that form any basis of your exclusion or elimination of the Eckington property.

Mr. Ham: Mr. Sangster, after eliminating the following items: Line street railroad car service, $180; street railroad car service, $360; Eckington line for street lighting, $5,000; arc street lighting, $1,050; incandescent street lighting, $100; line for house lighting, $100; Eckington line for house lighting, $13,000; house lighting, $950; stationary motor service, $160——

After eliminating the above items from the capital account how much property acquired by the Potomac Electric Power Company from the Potomac Light & Power Company (limiting your answer only to the distribution system) is now shown in your report as being in existence?

Mr. Sangster: I should say as far as I can make out it would be limited to line construction $1,591.45. That is the figure included in the total amount shown now as the original cost of all the lines owned by the Potomac Electric Power Company in existence at the present time, or at the date of the valuation. I do not claim to know that it still exists. I have treated, as I have repeatedly said, the overhead lines of this company in a general way. If we could show the specific items the same as we do for steam and electric plant, we of course would, but that is impossible in the present circumstances. We have to ascertain the amount of money expended on poles and overhead lines as nearly as practicable. We think we have succeeded in doing it.

Mr. Bowen: Don't that only emphasize, Mr. Sangster, that you cannot show the cost of the existing property on hand as a practical thing?

Mr. Sangster: I think it is a disadvantage which we have to deal with, but it is not an absolute bar to getting at the actual cost or the amount of money expended within reasonable limits. We have of course troublesome items to deal with, but if we have the cooperation of the officers of the company these are still further lessened.

Mr. Bowen: But you don't claim it is accurate; it is an approximation of the costs of existing property.

Mr. Sangster: It is a close approximation.

Mr. Ham: Do you think that this sum you mention, of approximately $1,500, is a close approximation of the cost of the existing distribution system of the Potomac Electric Power Company which it acquired from the Potomac Light & Power Company?

Mr. Sangster: The larger question does not involve the smaller.

Mr. Ham: That is, it is right in general but not in detail, is that the idea?

Mr. Sangster: Yes, sir.

327 Mr. Bowen: Is it possible to tell the existing property without conferring with the engineer who has made out an inventory?

Mr. Sangster: In some cases it is not.

Mr. Bowen: Can you tell from the books of the company what property is existing and what is not, as an absolute fact?

Mr. Sangster: Not entirely from the books of the company.

Mr. Bowen: Then your report is not based entirely upon the books of the company?

Mr. Sangster: No, sir. I have already said that we have sought supporting evidence from other sources.

Mr. Bowen: Then when you say there is certain property existing, you don't know whether it exists in fact or not, but only theoretically?

Mr. Sangster: That does not follow.

Mr. Ham: You stated in your direct testimony that some of your deductions and eliminations were made on the basis of an inventory dated June 30, 1914. To what inventory do you refer?

Mr. Sangster: I think there are several inventories. These inventories were obtained from the files of the company.

Mr. Ham: Page 417. The inventory to which I refer is that mentioned in your testimony at page 417, an inventory of the substation apparatus existing on June 30, 1914. From whom did you obtain that inventory?

Witness testified that he did not know whether this was the correct inventory or not. He does not know whether it was private data of Mr. Folsom or whether it was the official data of the company.

Mr. Ham: Mr. Sangster, I think you covered in your direct examination many of the items of substation apparatus, but I will ask you now what entries you found on the books of the company to convince you that the original installation of rotaries, switchboards, etc., at Substation No. 1, $6,962.61, mentioned on page 142 of your report, is not now in existence.

Mr. Sangster: Primarily that would be based upon the inventory that we have just been considering.

Mr. Ham: In other words, you have no knowledge, ascertained from the books or records of the company, to show that that apparatus no longer exists?

Mr. Sangster: It appears from the fact that we have not been able to identify the sale, that there is nothing to show directly in the accounting records of the company that the plant was dismantled. We have based our conclusions on the inventory t-at we were before considering, and upon a statement by an engineer assistant of the Commission, that the equipment was not now in that substation. I will say that our main basis was this inventory; we relied upon that inventory mainly. We conferred or consulted with several of Mr. Pillsbury's assistants having to do with substation equipment, from time to time. And, further, there was one of the Commission's engineer assistants or an assistant in the Engineer Department of the Commission—I think his name was Mr. Mills.

328

Mr. Ham: Would you give any weight to the ascertainment of facts made by Mr. Pillsbury and sworn to in his testimony?

Mr. Sangster: If I had the benefit of that statement, and it contained any information with regard to this substation equipment, I of course should have given consideration to it.

Mr. Ham: If you were informed, through the medium of Mr. Pillsbury's report, that any item of apparatus which you have excluded is actually in existence, you would restore it to that account?

Mr. Sangster: Why, surely. That is the point we are anxious to clear up.

Mr. Ham: Did you find any evidence from the books that a booster set, purchased in 1900 for $5,050, is not now in existence, except the things that you have already mentioned?

Mr. Sangster: Will you refer me to some item in my report?

Mr. Ham: Page 144, Substation No. 15.

Mr. Sangster: No, the situation there is identical.

Mr. Ham: Does your statement of installations at the Benning substation, show any booster set?

Mr. Sangster: Benning I think is No. 16?

Mr. Ham: No. 14.

Mr. Sangster: We have no booster set under Substation No. 14.

Mr. Ham: Will you please turn to that portion of Mr. Pillsbury's report which deals with Substation No. 14, and ascertain whether or not there is a booster set there included?

Mr. Sangster: Mr. Pillsbury's report under Substation 14 shows—

"Booster set, Eddy Electric Company, multicoil, flange coupled, common base D. C. motor; type-P 100 h. p. generator; type-G 60 kilowatt, 700 R. P. M., with foundation and with accessories"—

$1,673.97 under the reproduction cost, A column; under residual value, $190.83; under depreciation cost, $1,483.14; age, 14; life, 25; physical condition, G-80; per cent remaining 44; annual depreciation per cent 4; annual depreciation amount, $59.43." Yes.

This item was subsequently restored by the Commission.

Mr. Sangster: If you could prove that this is the same booster I should say that the inventory was incorrect in that one instance.

Mr. Ham: Regardless of the fact whether it is the same or
329 not, Mr. Pillsbury from an actual, physical examination finds a booster set at Substation No. 14. You report no booster set at Substation No. 14 based upon this inventory. Would not that tend to throw some doubt in your mind as to the accuracy of this inventory?

Mr. Sangster: One moment. Our schedules do not show the location of this apparatus as it is today. This table you are reading from shows that according to our statement there is no booster set in Substation No. 14, but you have not shown yet that there was a booster set purchased for that substation, and still there. If this booster was purchased for another substation and subsequently moved to No. 14, we will show the purchase under the substation at which it was originally located. I would not undertake to say where this booster set, shown by Mr. Pillsbury, is given in our schedules.

Mr. Ham: I do not understand. To be perfectly frank, I don't understand then the way that you have prepared your schedules. Do you mean to say that the lists you have in your statement of costs

are arranged not with regard to the present installation in substations?

Mr. Sangster: That is correct. And I want to be quite frank with you, Mr. Ham: I think you will be able to get through to the present locations as we found them in this inventory in your records, through our volume of appendixes where we show they were subsequently removed to, if they were at all removed.

Mr. Ham: Then will you show us in your report where the booster that is found by Mr. Pillsbury to be in Substation No. 14 is shown in your report, if it is so shown.

Mr. Sangster: I will see if I can locate it.

Chairman Kutz: Can the company facilitate this by telling us whether the booster set in Station 14 was purchased new for that station, or whether it was transferred from some other station to No. 14?

Mr. Ham: Certainly. So far as we know this booster set was purchased for use at the Glen Echo Substation; afterwards removed and kept in storage at 4½ street, and eventually installed at the Benning Substation.

Mr. Sangster: Could you give me the number of the Glen Echo Substation?

Mr. Ham: No. 7.

Mr. Sangster: I do not find that booster set in our schedules, and I would like to look into the item.

Mr. Bowen: So far as you are able to state it is not shown in your report?

Mr. Sangster: Yes.

Mr. Ham: And the fact that it is not included in your report, and is included in Mr. Pillsbury's report, would tend to raise some doubt in your mind as to the accuracy of this inventory that you used?

Mr. Sangster: I should say it does raise some doubt, yes.

330 Mr. Ham: Why did you eliminate the item of one 2,000 c. p. 100 light armature, $500, mentioned on page 146 of your report?

Mr. Sangster: That armature could not be identified in the inventory which we used.

Mr. Ham: Does the inventory purport to cover items of that classification?

Mr. Sangster: Probably the inventory does not purport to show the minor apparatus, but we have read this item here as not being present in any of the apparatus now shown in that inventory, * * * and we do not find that it reaches to this light armature purchased in 1899. That was our reason for its exclusion.

Mr. Ham: You are not sure however that the inventory is an inventory that would cover an item of this nature—an extra part apparently?

Mr. Sangster: The smaller parts would not be mentioned in the inventory.

Mr. Ham: But notwithstanding that you have eliminated it without any knowledge as to whether it existed or not?

Mr. Sangster: We think that smaller parts should be included in

the description of the main unit, and we traced these main units back to their dates of purchase.

Mr. Ham: And as to this particular armature, that is all you know about it?

Mr. Sangster: Yes.

Mr. Ham: And the books do not show that that armature has gone out of existence?

Mr. Sangster: Well, we have not been able to locate the sale of that particular armature. * * * I will not undertake to say whether this particular item was followed through in that way. It probably was.

But he cannot answer "Yes" or "No" whether it was in existence or not.

Mr. Barbour: This inventory that you speak of did not purport to cover such items as this, did it?

Mr. Sangster: I think it covered them by a description of the larger units.

Mr. Barbour: This particular item was purchased by itself, was it not?

Mr. Sangster: Yes, sir, but it would be installed with a larger unit at that time.

Witness knows that armatures are used in substation generally at present but in 1899 they were not; for main power stations turbo-generator equipment would be purchased complete. In 1899 turbo-generator plants were not in use; they would have dynamos; and armatures would be used for dynamos.

331 Mr. Ham: Have you used in your work any inventory of existing power plant apparatus as distinguished from substation apparatus?

Mr. Sangster: No, we have not used an inventory in that way; and they have arrived in power plants in an entirely different way from what he has arrived at as to what is existing property in substations.

Mr. Ham: What was the necessity for arriving at your substation list of existing property in that way, the way you did, rather than from an examination of the books of the company?

Mr. Sangster: We had so many purchases and sales and transfers from one station to another that it was not clear in some cases whether the unit was finally disposed of or we were merely finding or tracing entries attendant on the transfer of locations. We thought that we would improve and strengthen our position by reference to this inventory.

332 *Lines* 29, 30, 31, *and* 32.

Mr. Ham: On page 359 of your testimony you say, in answer to a question of Mr. Bowen:

"Let me say with respect to that that we have not made the same extensive investigation of the operating expense accounts, but we have kept a careful general survey of the maintenance accounts, which are the accounts that would include any expenditures which

might from another point of view be included in the plant account. It is because of that careful watch that we kept of the maintenance account that we discovered $47,000 odd, I think it was, which was added into the plant account."

Do I understand from this statement that you understood it to be the purpose of your inquiry to ascertain the cost of existing property whether or not it was included in plant account or in other accounts?

Mr. Sangster: We endeavored to show the original cost of all the property, and while there might be a possibility that some items would be included in the maintenance accounts, we endeavored there to discover any such items and restore them to the plant accounts.

Mr. Ham: In other words you feel that it was the object of your study, regardless of how the items were entered on the books of the company, to ascertain the actual cost of the property?

Mr. Sangster: Yes.

Mr. Ham: And if items were in operating expenses that should be transferred to plant account, it was your intention to *do* transfer them?

Mr. Sangster: Precisely.

Mr. Ham: And you believe that that is the intent of the direction contained in the Public Utilities Act, that regardless of the methods of accounting followed by the company, it is your purpose to ascertain the cost of the property?

Mr. Sangster: The amount of money expended on construction and equipment, as we found it, or as it was in existence at the date of the valuation.

333 Mr. Ham: My recollection, Mr. Sangster, is that we were discussing the item mentioned on page 359 of your direct testimony, in regard to $47,000 odd which was added into the plant account. Will you please refer to your report and state where this $47,000 odd is shown as being added to the plant account?

Mr. Sangster: Page 246, which is Exhibit G, of Section 17. We are referring now to $42,017.59?

Mr. Ham: So that what you meant in your testimony on page 359 was $42,000 instead of $47,000?

Mr. Sangster: Yes. I can say now that the second item $27,393.68 is charged in the books to reconstruction in 1899 and 1900, for some conduit work. You will find journal entry, December 31, 1900, profit and loss debtor to reconstruction, $47,494.22. The $27,393 is part of that $47,000.

Mr. Ham: Had any portion of that been entered in the operating expenses of the company?

Mr. Sangster: It was charged to this special reconstruction account, and from there transferred to profit and loss direct. I use that term "operating expenses" as forming part of the charges ultimately to profit and loss. It may not be what you would strictly term "operating expenses."

Mr. Ham: Were these reconstruction charges? Were they maintenance charges or were they actual construction expenditures?

Mr. Sangster: In my opinion they were not reconstruction charges.

Mr. Ham: They were construction charges?

Mr. Sangster: Yes, sir.

Mr. Ham: And the company in no way included them in its operating expenses.

Mr. Sangster: Very well. Let me say that they included them in their profit and loss account.

Mr. Ham: That is satisfactory. It was a direct charge made by the company against profit and loss and was never entered in the books of the company as operating expense.

Mr. Sangster: Very well; I agree to that. I took out of profit and loss account a sum of money which would have been charged to surplus unless this adjustment had been made which had the effect of taking it out of surplus and charging it to plant; in other words, adding to the plant account. Let me say then that it was as a result of a general scrutiny of all the items which were charged by this company to its surplus, that we discovered this item of $47,494.72. The item of $27,393.68 forms a part of this reconstruction account and the charge totals $47,494.72. We can furnish details of this $27,393.68. We do not know what the balance is composed of—that is the balance of this reconstruction charge in 1900. We cannot get it from the books. So far as we have been able to discover there are no details. They were not available at the time we made our investigation. But I understand that what Mr. Ham is asking for is a detail of the $42,017.59. The detail of the $27,393.68 can be given.

Chairman Kutz: All right; that will be furnished.

Mr. Ham: I will ask that that be given to us before the completion of Mr. Sangster's cross examination. The item of $14,893.91 charged to General Equipment, plant account, was transferred from what operating expense account—and this also being a part of $42,017.59?

334 Mr. Sangster: That I could not answer right now. By looking up the details I could give you the information.

Mr. Ham: We will ask then that we be furnished with that data before the completion of Mr. Sangster's cross examination.

Again referring to this item of $27,393.68, and therefore the total of $42,017.59, the statement that that was transferred from operating expenses to plant account is not true, is it?

Mr. Sangster: We wish to be quite specific, and we would substitute the term "Surplus Account" for "Operating Expenses."

Mr. Ham: And to that extent you change your report?

Mr. Sangster: Yes.

Mr. Ham: I will have to defer further cross examination on this point until we are furnished with these figures that I have asked for. I am asking for information: As I understand it, summary of net expenditures, as shown on page 9 of your report, is supported by references which show the accounts as appear on the books of the company that have been closed into these accounts?

Mr. Sangster: Yes.

Mr. Ham: But after that has been done and you had grouped

these accounts, as shown on page 9, that classification was not satisfactory to you, for your purposes, is that correct?

Mr. Sangster: In some cases it has been modified and adjusted.

Mr. Ham: And it became necessary, or you considered it necessary, after that step, to make many so-called intersectional adjustments?

Mr. Sangster: That is true.

Mr. Ham: Then how can the company have knowledge of what you have intended to include in each one of your accounts as mentioned on page 13 without further explanation from you?

Mr. Sangster: Taking the land, buildings, steam plant, electric plant, turbo construction, miscellaneous power plant equipment, we have given I think satisfactory details of all the items which go to make up the final amount shown in this report.

In conduits, overhead lines, cable, and street and park lighting system, we have not attempted to give any details supporting the general figures, except some physical statistics.

Mr. Ham: With reference to those last named accounts, how can the company tell what you have intended to include in them without further explanation from you?

Mr. Sangster: Why, we have intended to include everything which the descriptive heading would cover.

Mr. Ham: You say which the descriptive heading covered; now, who defines what is covered by the descriptive heading?

Mr. Sangster: I said there were several groups here for which we had not been able to give any detail, or that it would not be practicable to give the detail.

Mr. Bowen: What details do you have reference to that you have not furnished us?

Mr. Sangster: Details of each and every item charged in the company's plant accounts.

335 Mr. Bowen: Those details you have not furnished the company?

Mr. Sangster: No, sir.

Mr. Ham: Did you do all this work yourself, Mr. Sangster?

Mr. Sangster: Is it likely, Mr. Ham?

Mr. Ham: Well, did you?

Mr. Sangster: I had several assistants on the work.

Mr. Bowen: What part did you take in placing the property under these classifications of yours?

Mr. Sangster: I issued the general instructions.

Mr. Bowen: Did you actually do any of the work yourself?

Mr. Sangster: No part of the mechanical work.

Mr. Bowen: How do you know that it is correct?

Mr. Sangster: I replied upon my assistants.

Mr. Bowen: Entirely?

Mr. Sangster: Generally, yes. I may have in some cases—I relied entirely on my assistants working under the instructions which they received.

Mr. Bowen: Could you observe the Interstate Commerce Commis-

sion classification all through and state your report in accordance therewith?

Mr. Sangster: In my opinion it was not practicable. We came to the conclusion that it was not practicable to state the results under the Interstate Commerce Commission classification; it was too detailed.

Mr. Bowen: You have stated that in connection with the overhead lines and poles, underground conduits, underground cables and street and park lighting that your report is not sufficiently plain to enable us to understand what is included thereunder, without an explanation from you or details furnished by you. Now, we ask that you furnish those details to us. Did you or not make any such statement, Mr. Sangster?

Mr. Sangster: I stated that in these various accounts you named in your question that we had not given the complete details.

Mr. Bowen: I think the question, Mr. Chairman, fairly brought out the very thing that Mr. Sangster answered. Now we ask of Mr. Sangster, will you furnish us the details in order that we may understand what property is covered by these classifications.

Chairman Kutz: I would like to state right here, for the benefit of the company, and everybody present, that the Commission cannot undertake to do over again the work that it did, through this witness, for the last two years. It will endeavor to furnish any specific information on any specific point that you ask for.

Mr. Bowen: I understand, Mr. Chairman. So that we may make our point clear, and to state our objection, our objection is, and has been all through, that the report of Mr. Sangster is not a report that should have been admitted in evidence, and that all of his testimony founded thereon should be excluded.

The purpose of asking these questions is to base a motion to exclude his report and all the testimony. I understand perfectly well what is in the Chairman's mind as to the work that it might require, but nevertheless I think it is a legal right of the company to ask the questions.

336 Chairman Kutz: If you are asking whether he can furnish it, that is one thing. You are asking him whether he will furnish it.

Mr. Bowen: That is true. If he does not do it that is a ground for the exclusion of the report. I am not taking into consideration at this time, Mr. Chairman, whether it is a practicable thing. If he does not produce it, that is a reason in itself, in our opinion, for the exclusion of the report.

To make it clear in the record, we will ask you, Mr. Sangster, if you will furnish us the details covering your classifications of overhead lines and poles, underground conduits, underground cables and street and park lighting.

Mr. Sangster: It would not be practicable to submit these details. These headings cover the accounts kept in your own books, except where we have made adjustments.

Mr. Bowen: Does your report coincide with the entries in our books?

Mr. Sangster: I could not answer that question.

Mr. Bowen: Is your report stated in any different form than the entries are shown in our books?

Mr. Sangster: Yes, sir.

Mr. Bowen: Can we understand what is included under these classifications, namely, overhead lines and poles, underground conduit, underground cable, street and park lighting, without an explanation from you as to the details covered thereunder.

Mr. Sangster: You are well aware that we have made certain final adjustments on the amounts found in the records of your company.

Mr. Bowen: So as to make clear what I mean, is your report sufficiently clear of itself, without this explanation from you?

Mr. Sangster: I have already stated several times that this report does not. I think the report shows sufficiently clearly that we have allowed certain items in the books of the Company to remain as proper expenditures charged to plant. The balance of the items are shown as eliminated, as not proper charges, so far as I have been able to form any judgment. You have been given full and complete detail of all those eliminations, and can thereby ascertain just whatever items we have included in the classification as eliminated. In addition to that, I will say that the report is not in sufficient detail to, in every case, that is, in every section, show how the amount which was left undisturbed has been ascertained.

Mr. Bowen: In other words, Mr. Sangster, your report of itself is not sufficiently clear to show what property is included under overhead lines and poles, underground conduits, underground cable, street and park lighting, without an explanation from you, or the furnishing to us the details thereof?

Mr. Sangster: I think the report, as it is built up, is sufficiently clear in itself. If you insisted on getting all the items that we have included under these sections that you named, it would be necessary to furnish some further information, but as to whether these terms which are used are sufficiently clear they make it difficult for me to answer the question.

337 *Lines* 29, 30.

Mr. Ham: You have already testified, I think, that Account E 301, Organization, is not covered by your classification.

Mr. Sangster: I testified that it was not fully represented.

Mr. Ham: If at all represented, in what account is it?

Mr. Sangster: Well, if we restrict our discussion to this table, page 13, it is not at all represented.

338 *Line* 11.

Mr. Ham: Does Account E 302, Franchises, appear on page 13?

Mr. Sangster: No sir.

Mr. Ham: Does Account E 303, Patent Rights, appear on page 13, or is it included in any account on page 13?

Mr. Sangster: No, sir.

Mr. Ham: Does Account E 304, Other Intangible Electric Capital, appear in any account on page 13?

Mr. Sangster: No, sir.

Mr. Ham: In what account on page 13 do you show the items covered by Public Utilities Account E 305, General Structures?

Mr. Sangster: The buildings and other structures of a permanent character are included in our heading of "Buildings"; also all the fixtures, such as heating and lighting. The engines and motors, furnaces, boilers and electric generators, specially provided for such buildings, are included in these buildings, where the Company has so charged the item. If the Company has charged the furnaces, boilers and electric generators to other accounts, that has not been disturbed.

339 *Line 7.*

Mr. Syme: Mr. Sangster, do not your details, your report, show exactly what is included under each heading?

Mr. Sangster: I have detailed the separate accounts kept by the Company with their numbers, and the grouping will show under which heading I have included it.

Mr. Ham: But the point is that after that step comes another step of intersectional adjustment, concerning which we have not the details.

Chairman Kutz: How will that affect the totals?

Mr. Ham: I do not know.

Chairman Kutz: Well, why will it affect the totals at all?

Mr. Ham: We went into some discussion of that the other day, and it may be before we are through with the examination we will show that it does affect the totals.

Mr. Syme: Now, what I want to get at is this: You have also shown in this report a detail of eliminations, have you not?

Mr. Sangster: Not in the report, but we have since furnished a detail of the eliminations.

Mr. Syme: Now then, as I understand it, these articles generally classified on page 13, added to the eliminations of which you have given the detail to the Company, together make the sum total of the money expended, the expenditure by the company for the plant as shown on its books?

Mr. Sangster: Yes, sir.

Mr. Bowen: Mr. Sangster, but you have not furnished the full detail to the Company of overhead lines and poles, underground conduit, underground cable, street and park lighting and electric services.

Mr. Syme: If the books have got all the detail.

Mr. Sangster: For the reason that that would be impracticable.

Mr. Syme: Mr. Sangster; if the schedule of property you have given in this report contains all of the property of the Company and the money expended for it when added to the eliminations which you have scheduled in detail, what difference does it make, except as a matter of convenience, as to how you classify it? The

question is as to how much the Company has expended for its plant and equipment.

Mr. Sangster: It makes no difference whatever in the final total.

Mr. Ham: Suppose it does not include all of the property owned by the Company? What would you say then?

Mr. Syme: I asked him if he did.

Mr. Ham: I say suppose it does not?

Mr. Syme: Then if they have any more property than you have shown here they can show it and have it added, can they not?

340 Mr. Sangster: Yes, sir. If it can be verified as proper expenditures applied to their plant account, it can be added.

Mr. Bowen: But suppose your report does not contain all of the property of the Company, then what would you say as to the result shown in your report?

Mr. Sangster: If there are any items which the Company has not charged to Plant and which are properly charged to Plant, those ought to be allowed, in addition to what we have found from the records, as charged to Plant. My report shows all expenditures charged to the Plant Account for properties still in existence at the date of the valuation, June 30, 1914.

Mr. Ham: I want to interrupt there. That is not what you stated yesterday was the purpose of your inquiry. It was whether it was included in the Plant Account or not that you made that, that you were trying to report to this Commission the cost of its existing properties, whe-ever recorded, whether in Plant Account or elsewhere.

Mr. Bowen: That is what I meant by my question.

Mr. *Bowen:* Does your report show the physical property as of June 30, 1914?

Mr. Sangster: You mean is it possible to compile from my report an inventory of the physical property of the Potomac Electric Power Company? I should say no.

Mr. Syme: Now, why is it not possible to compile an inventory?

Mr. Sangster: I understand by the term "inventory" a detailed list of everything that this Company owned.

Mr. Syme: From the screws and nuts and bolts up?

Mr. Sangster: Well, perhaps not so detailed as that, but every specific item of property named, so many poles and so many cross-arms, with their descriptions, the number of poles, the different lengths in feet of wire, all described according to its size, the capacity or type. That, of course, I do not and would never hope to give in an accounting report.

341 *Line 7, Subsection 10.*

Mr. Ham: One of the items that I asked for the intersectional adjustment was that affecting street and park lighting. I will ask you to follow me in this statement, if you will, Mr. Sangster, by reference to such reports as you want, interrupting at any time you desire, to see if I correctly state what you have done.

Mr. Sangster: Yes.

Mr. Ham: This account is made up from our books as follows: From books of the United States Electric Lighting Company, Miscellaneous Distribution Equipment, $7,327.26. And from the books of the Potomac Electric Power Company as follows: Reorganization Property, $495.03. From Miscellaneous Distribution Equipment, $256.22. I am speaking of the accounts the total of which make up the item of $97,517.80, on page 9 of your report, under Street and Park Lighting System column headed "Potomac Electric Power Company," where there appears an item of $97,517.80. I am simply attempting to develop from what accounts on the books of the Company you made up that figure. (Continuing.) Miscellaneous Distribution Equipment, $34,591.48. You have Street and Park Lighting, Overhead and Incandescent System, $23,580.44. Also Street and Park Lighting, Overhead Arc System, $52.84. Street and Park Lighting, Incandescent System, $23,607.95; Street and Park Lighting, Underground Arc System, $4,933.84.

These items aggregate $104,845.06, as shown on page 9 of your report.

Now, in view of the facts that the books of the Company at different stages had contained different classifications of accounts, and your purpose being to group in one account the cost of all existing street and park lighting sytsem, you found it necessary to make certain intersectional adjustments. Is that correct?

Mr. Sangster: That is quite correct.

Mr. Ham: Your purpose being to come to a result which would represent the cost of all existing street and park lighting system?

Mr. Sangster: Yes, sir.

Mr. Ham: As defined by you this morning, contained in the account E 327 of the Interstate Commerce Commission?

Mr. Sangster: As nearly as the accounts of the Company would allow that to be done.

Mr. Ham: Yes, but the object of these intersectioanl adjustments—now get that thoroughly in your mind, that you admit that the accounts of the Company were confused, that they covered a wide space of time, but that your object is to present to this Commission information as to the cost of street and park lighting system as of June 30, 1914, regardless of how it was shown on the books of the Company, was it not?

Mr. Sangster: Yes, sir, so far as we can gather these items under that head.

Mr. Ham: That was your object. I do not mean how closely you accomplished it, but that was your object?

342 Mr. Sangster: That was the object, yes.

Mr. Ham: Now, in order to do that you made the following *ing* intersectional adjustments, and I will ask you to follow me. You added to this account from other accounts the following items: From Overhead Lines and Poles, $18,879.95; from Line Transformers and Devices, $346.58; from Property Account, United States Electric Lighting Company, $19,200.58; and you deducted from this acount and charged to other accounts the following items:

To Overhead Lines and Poles, $5,993.40; to Underground Cables, $5,152.84 and $3,149.73; to Arc and Incandescent System, $8,622.90; to General Equipment, $14,403.49; to General Depreciation, $10,747.15.

Mr. Sangster: Yes.

Mr. Ham: Leaving a total of $95,202.66 which you divided as between good and that which is now out of existence, the good being $76,002.08, and that which is out of existence, $19,200.58.

Mr. Sangster: Yes.

Mr. Ham: This required a minute study of the accounts of the Company for many years back, did it not?

Mr. Sangster: It required a great deal of analysis.

Mr. Ham: These intersectional adjustments of this one account cover many pages? And then you state that the cost of plant now in existence, so far as it affects street and park lighting, is $76,002.08?

Mr. Sangster: That is correct.

Mr. Ham: And your report shows that in a certain amount of detail on page 197?

Mr. Sangster: Yes, sir.

Mr. Ham: You desire the Commission to be informed that the amount spent for street and park lighting system now in existence is $76,002.08?

Mr. Sangster: It is not claimed that when we come to distribution and transmission system that they may be a'solutely correct in themselves. There is the anomaly that while it is not correct in detail it is correct in total, but it has rather to be stated this way, that the statement of the amount of money expended is the result of an examination of the books of the Company. I am convinced, and myself believe that the total is not understated. I do not claim that this one section is an absolute correct statement of the amount of money expended on street and park lighting system as one would understand from the Interstate Commerce Commission classification of accounts.

Mr. Ham: What is the purpose of it, then, going through this vast amount of work, making these intersectional adjustments, concerning which I felt that I did not want to ask for all of them, because of the burden it threw upon the Commission, but what was the object of doing all this work if you have not arrived at a result on which you are willing to stand?

343 Mr. Sangster: I think we have to give as much information as we possibly can.

Mr. Ham: Have you made any comparison of these figures with those of Mr. Pillsbury?

Mr. Sangster: No, sir; I have not had the opportunity.

Mr. Ham: We would like to refer to Mr. Pillsbury's testimony and report. Mr. Pills'ury has stated in his testimony and in his report itself that he has followed the classification of the Interstate Commerce Commission. You have stated in your testimony that you have included in this account the items which are mentioned

as those of the Interstate Commerce Commission as nearly as possible.

Mr. Sangster: That is right.

Mr. Ham: Now, Mr. Pillsbury reports as the cost of street and park lighting, after deducting exclusive of conduit and paving, $292,586.40. You find as the cost of plant now in existence, $76,002.08. How can you explain that wide discrepancy?

Mr. Sangster: I will not undertake to make any comment whatever on Mr. Pillsbury's report.

(NOTE.—The Commission restored to this account $19,200.58 still leaving the cost of street and park lighting $197,382.32 short of Mr. Pills' ury's estimate of the cost of reproducing, which, exclusive of paving and overhead, would more than account for the loss of property sold, scrapped and abandoned which the Commission failed to restore.)

Mr. Bowen: Now, Mr. Sangster, without reference as to any particular accounts on the books of the Company, are you willing to state that the books of the company as of June 30, 1914, show the cost of total street and park lighting system as $76,002.08?

Mr. Sangster: No; I would not say that the books show that figure directly." That he took an inventory of certain classes of items and not an inventory of other classes of items; for instance, an inventory of incandescent lamps but did not take an inventory of the poles to which the lamps were attached, because "We have always to follow, of course, the line of least resistence, and we have to make our analysis in a way where we can obtain some definite result. In the case of lamps and others, where we obtained an inventory from the Company, we were enabled thereby to ascertain the result in a more direct way than going all through the items shown in the books of the Company.

Mr. Ham: What is the object of arriving at a definite result that is absolutely wrong?

Mr. Sangster: I do not know that any one of these results is absolutely wrong.

Mr. Ham: Well, you mean that there would be no object in it?

344 Mr. Sangster: Certainly. There would be no object in getting a meaningless result.

Mr. Ham: Well now, of course I am trying to show that somehow or other this wonderful system of yours in arriving at the cost of our property has fallen down. It is not any reflection upon you, because you were engaged in an impossible task. I am trying to develop that it is proven to be impossible.

Mr. Sangster: I think we always have the safeguard, Mr. Ham, that these figures are shown as nearly as practicable.

Mr. Ham: Yes, and it is the contention of the Company and has been throughout that this is an impracticable and impossible way of ascertaining the cost of the existing property.

Mr. Sangster: I do not agree with you.

Mr. Ham: You say that the Company has an investment in 863 poles, including cross-arms, mast-arms, cables, etc.

Mr. Sangster: Yes, sir.

Mr. Ham: Do you know how many poles the Company has?

Mr. Sangster: No, sir. This number given here is the number we have obtained from the records of the Company, as nearly as we could place them as belonging to the street and park lighting system. We have given what we have ascertained from the Company—863.

Mr. Ham: Does your report show how many street lights are in existence?

Mr. Sangster: No, sir.

Mr. Ham: Will you turn to your report of arc and incandescent lamps, and see whether it shows how many street lamps are in existence?

Mr. Sangster: We have in service, in table 1, 1,174 public arc lamps, 405 commercial arc lamps. Incandescent lamps in service for the District of Columbia, according to table 2, we show 5,331; multiple lamps, 487; altogether 5,818; Nernst lamps in service, 64 public lamps, 126 commercial lamps. Altogether there are 7,056 lamps, if we include public arc lamps, all the incandescent lamps and the public Nernst lamps.

Mr. Ham: You know that some lamp poles here in the city are owned by the District, do you not?

Mr. Sangster: Yes.

Mr. Ham: Do you know how many are owned by the District?

Mr. Sangster: No, sir.

Mr. Ham: If you were informed that of 1,174 arc lamps in service, 193 were owned by the District, thereby leaving a balance of 964 owned by the company, how would you account for the fact that your statement only shows 863 poles?

345 Mr. Sangster: I would account for that by saying that the accounts of the company which show any definite reference to poles for street and park lighting purposes do not show the total number. * * *

Mr. Ham: If in addition to that I should state, as a matter of fact, that 2,040 incandescent lamp poles are owned by the District, and that 1,088 poles are owned by the company, how would you account for that additional number of poles that you are short?

Mr. Sangster: In the same way.

Mr. Ham: In other words, that the accounts of the company, after this minute examination that you made, did not enable you to ascertain how many poles there were in street and park lighting service? Have you examined the operating accounts to know whether there might have been any poles installed through the medium of operating expense accounts?

Mr. Sangster: Our examination of the plant account showed that new poles were installed and old poles were displaced, the displacements being charged to maintenance, or such appropriate account. We have not examined in detail the operating expense accounts. It is conceivable there may be some poles charged to operating expense,

but I should not think that would be a policy the company would follow of charging new poles to operating expense. We assumed that the plant accounts of the company which would have any reference to new installations, would be correct.

Mr. Ham: If you had known that the company owned a number of poles for street and park lighting service as found by Mr. Pillsbury in a physical examination, would you have felt that there must be some error in the way you have stated this account of street and park lighting?

Mr. Sangster: I should have made inquiries as to what Mr. Pillsbury understood when he made his classification, and tried to ascertain in some way how his idea of street and park lighting poles differed from that which we found from the records.

Mr. Ham: What you found from the records is a final finding that you made from an examination of these accounts making the most minute intersectional adjustments. The company is not claiming for a moment that it has any account in which we set up all of our street and park lighting lamps or lamp poles, but you have stated throughout that it was your effort to restate our accounts so as to group in this one account of street and park lighting system the entire investment of the company in street and park lighting system. Isn't it apparent that in some way you have made a considerable error, if my statements of fact are correct as to the number of poles the company owns?

Mr. Sangster: If the number of poles which you have stated to be owned by the company is correct, then I should say that our separation of the expenditures on poles as shown by the various accounts of the company, whether for overhead lines or for street and park lighting, is not a sufficiently close approximation; in other words, my report is perhaps weak in the effort to distinguish between street and park lighting system and the overhead lines.

346 Mr. Ham: Yes, but your effort was not at all weak in stating that you would eliminate from the capital account of the company the entire investment made in overhead lines by the United States Electric Lighting Company for many years. You simply wiped it out. You said because all of their overhead lines were put under ground, or because there was a law passed, or something like that.

Mr. Sangster: Yes, sir.

Mr. Ham: Wouldn't that tend to make you think that possibly among those overhead poles that you have eliminated were many that are still in existence for street and park lighting?

Mr. Sangster: Not many. There may be some.

Mr. Ham: How do you account for this difference of more than 100 per cent, and I am accepting a minimum in our figures because there is a question sometimes whether a pole is a pole for street lighting service or for the distribution system. A pole may support both distribution wires and a lamp.

Mr. Sangster: Yes. There is a reasonable assumption that there are some of those poles in the poles we have eliminated in the overhead lines.

Mr. Ham: How many?

Mr. Sangster: Of course, always assuming that we do know the exact number of poles which are used exclusively for street lighting purposes. * * * If we were certain what number of poles were used exclusively for that purpose, then it is conceivable that some of the poles which we have eliminated, the older poles, that is to say, as new overhead lines, might belong to the street and park lighting system as it is today.

Mr. Ham: Where do they come from if they do not come from there and did not come from operating expense? How would the company have them now? I want you to answer from your investigation of the accounts as to what your investigation of those accounts would lead you to believe as to where they might have come from.

Mr. Sangster: You refer to the difference of 1,000 poles or so? The whole of those 1,000 poles might on the other hand, conceivably be new poles in overhead lines. I mean to say we may have them in our poles in overhead line expenditures.

Mr. Ham: What poles have you included in these 863?

Mr. Sangster: All poles we could find in the accounts which related at all to street lighting.

Mr. Ham: You have stated, in your direct testimony, that this amount which you have eliminated is simply a difference, this item of $19,200.58. This says, "It is merely a difference between the total which we find under the description, 'total street and park lighting system' and the company's book figure."

If that is true, and there is a manifest error in the $76,002.08, must not that necessarily affect this difference that you speak of?

Mr. Sangster: No, sir. You have the details of the elimination of $19,200.58. You will not find that that includes any poles.

Mr. Ham: Then the error that we are looking for must be included in the elimination included in some other account.

Mr. Sangster: The error may not be in any elimination. The error may be partly in elimination and partly in a different classification of property now in service.

Mr. Ham: May it not have something to do with these intersectional adjustments?

347 Mr. Sangster: The intersectional adjustments would not affect the question, Mr. Ham.

Mr. Ham: Isn't it through the medium of intersectional adjustments that you ascertained the total investment as you have re-written it under this new classification of your own?

Mr. Sangster: It is through the medium of the intersectional adjustments that I give the total under the division that I divided up. If I had before stated the elimination brought into a division a number of expenditures from another section, and then said, "Now, the difference between this total, as I have adjusted it, and this other figure, as I have found it should be finally stated, must be eliminated, then manifestly the amount I transferred, in addition to what they had in their own accounts under that section, would increase the eliminated item, but there are no poles in this elimination at all, this street and park lighting. The United States Electric Lighting

Company had no separate account in which it entered poles exclusively for street and park lighting system prior to 1899. From 1883, down to 1897, the United States Electric Lighting Company kept a general property account, and they charged to that account all the line, buildings, power plant, machinery, poles and overhead line. This account, therefore, included all poles they purchased for their overhead system, whether for street and park lighting or whether for general distribution system. We went into this property account and ascertained all expenditures for poles. In 1898 we find from a study of the history of the company that it was required to place all its overhead lines within the city limits in underground conduits. We assumed that all those poles so charged by the United States Electric Lighting Company to its property account down to that date were affected by that requisition. We may be in error. We may have included in among those poles some poles which are today, if they are still in existance, used for street lighting purposes.

348 *Line 7, Intersectional Adjustments.*

Mr. Sangster: In accordance with the request of the company, we were furnished with sheets of intersectional adjustments in relation to street and park lighting (indicating page one of those sheets which you so furnished us) and the sheet was thereupon read into evidence and showed:

"Street and park lighting adjustments.

"Transferred from: Account 119, overhead transmission system.

"1911—1 oil switch installed in Tennallytown car barn, $186.60.

"3 disconnecting switches installed in Tennallytown car barn, $38.31.

"1 auto transformer and switchboard installed in Tennallytown car barn, $735.75.

"1912, 1 set disconnecting switches installed at Benning, $174.60.

"1 set 13,200 volt cell arresters and one set 3 choke coils installed on second pole east of turbine room siding, at Benning, together with necessary support and ground connection on line to steel plant, $476.92.

"Miscellaneous charges, $59.96.

"Total, $1,672.14."

Mr. Sangster testified that these intersectional adjustments were made in pursuance of his directions: that the street and park lighting account section should show, as far as possible, all items which we could determine were for street and park lighting purposes. The first item "oil switch installed in Tennallytown car barn, $186.60" was because the accountant who analyzed these accounts had apparently come to the conclusion that this switch was for street and park lighting purposes; witness knew nothing about it himself. He relied upon his assistants in making these adjustments. He does not know that it amounted to a substitution of the opinion of the officers of the company "We had the benefit of a continuous study of these accounts."

Mr. Ham: Had not the accounting department charged the item

to transmission system, which certainly represented their judgment as to the propriety of the charge, and you transferred that, or your assistant transferred that, to street and park lighting?

Mr. Sangster: Yes, sir.

He did not know what assistant did that; he could not say whether it was a proper transfer or not and was unable to say merely from an examination of the exhibit; that he sees no reason now for the transfer.

Mr. Bowen: From what you see of it now, would you change your report or leave it as it is?

349 Mr. Sangster: I would not alter the report, just from what I see there.

Mr. Ham: Have you not substituted your judgment for that of the proper accounting officers of the company? This distribution to overhead system is approved by a bookkeeper and the chief clerk of the company, as well as by the acting comptroller of the company as being correctly charged to transmission system. Do you contend, even after seeing the item, you would still transfer it to street and park lighting system?

Mr. Sangster: No, sir. Until I satisfy myself that it was an error to do so, I shall leave it where it is. I should feel that inasmuch as my assistant has made the adjustments, I should want to be in the same position as himself, that is to say, having made the analysis of all these accounts, I should probably then define as to what was in his mind as to why he should make that transfer. Until I can get that opportunity, or make a complete analysis, I would not be in the same position as himself.

Mr. Bowen: Do you want an opportunity to do that.

Mr. Sangster: That would be impracticable, I think.

Mr. Bowen: Do you claim the right, in making you- report, to substitute your judgment or that of your assistant for that of the proper accounting officer of the company in making charges to the proper account?

Mr. Sangster: In the opinion of my assistant, he, in the course of his analysis, came across certain items which at the time, to the best of his judgment with the information he had before him at the time, having made an analysis of numerous other items in these accounts, comes to the conclusion that he should make this transfer, and we will stand, of course, by the result.

Mr. Bowen: Although it is apparent to you now that your assistant made a mistake in substituting his judgment for that of the proper accounting officers of the company?

Mr. Sangster: I do not think it is apparent. I would like to have had the opportunity of ascertaining from him personally why that adjustment was made; could not have done it by going over the accounts himself or his own data; that would have been impossible. I have to leave a certain amount of work to my assistants.

Mr. Ham: Mr. Sangster, again looking at this item is there anything about the description of the item which would lead you to believe that it could not be properly charged to street and park lighting system?

Mr. Sangster: I will say that my scrutiny of these papers here shows that it might be well enough to be charged to the account in which we found it in the record.

Mr. Ham: Do you think, from an examination, that it was proper to transfer it, or that it would be proper to transfer it, to the account to which you have transferred it?

Mr. Sangster: I am unable to say from this statement here.

Mr. Ham: You have also transferred from overhead transmission system three disconnecting switches installed in Tennallytown car barn, $38.31. Do you know anything about why that transfer has been made?

Mr. Sangster: No, sir, not from the papers you have handed me.

Witness relies entirely upon his subordinates in this matter.

Mr. Ham: And there is nothing about that that now leads you to believe it could not, with propriety, be charged to street lighting system?

Mr. Sangster: No, sir.

Mr. Ham: One more item, the item of installing one set of aluminum cell arresters, etc., $476.92. Will you look at that item and state whether or not you relied entirely upon your assistant?

Mr. Sangster: I have relied entirely on my assistant.

350 Mr. Ham: Is there anything about that which might lead you now to think that it could not, with propriety, be charged *t*i street and park lighting system?

Mr. Sangster: No, sir.

Mr. Sangster testified that on several occasions he had made investigations or revised the work done on investigations of street lighting companies. He could not recollect what was the comparative size of the electrical department of the St. Paul Gas Company as compared with the Potomac Electric Power Company but it was quite a substantial plant. He did not undertake at that time to analyse the accounts for the purpose of transferring from one account to another items that had been improperly charged; and prior to the examination of the Potomac Electric Power Company's books, he had had no occasion to pass upon matters of this kind. Asked, Do you know enough about the electric lighting business to know whether 13,200 volt cell arresters have anything to do with the street and park lighting system?" he replied that he would like to consult with some engineer but does not know himself.

Asked "Did you rely upon any outside engineer's assistance, or, so far as you know, was your subordinates instructed to consult any engineer about a matter of this kind?" he replied:

"Yes, sir. Wherever we felt that we wished to be further informed as to any technicalities we sought the assistance of Mr. Pillsbury's assistants."

Could not say as to the course followed in this case; does not remember that those items were ever discussed in that way personally; cannot say with assurance at this moment that 6,600 volt circuit should have anything to do with street and park lighting system.

Mr. Ham: You don't know enough about the business, to know?

Mr. Sangster: At this moment, no. I may have put certain questions to certain experts or others to satisfy myself on certain matters at another time. I consulted with Mr. Pillsbury and with his assistants at numerous times; but he cannot say about these items; that he knows what transmission system is; that generally speaking, the high tension system from the power station to the sub-stations; that generally speaking he is familiar with the instructions of the Public Utilities Commission with regard to "transmission system" but is not familiar with the particulars and read into the record instructions in that regard as follows:

"Account E-321. Transmission system. This account includes the cost of the transmission system, including cables, wires, insulators and insulating material.

"NOTE.—When the electric current generated (or received from another corporation) is conducted, either at the voltage of generation (or receipt) or at a higher voltage, to a point where it is (*a*) lowered in voltage by means by stepdown transformers, or changed as to kind of frequency by means of (*b*) motor generator sets (*c*) rotary converters, or (*d*) frequency changers, that portion of the outside line or conductor system antecedent to the said stepdown transformers, motor generator sets, rotary converters or frequency changes, should be classed as the "transmission system"; except, however, that primary wiring in lighting systems ought not to exceed 4,400 volts, 4-Wire, 3-phase should be classed as a part of the distribution system. Tie-lines between generating stations and sub-stations should follow the same rule. Line transformers are not included among the 'stepdown transformers' above men-
351 tioned."

That he had surely read this before.

Mr. Ham: In view of these items to which I have called your attention which have to do with voltage running from 6,600 to 13,200, do you now think they have anything to do with street and park lighting system?

Mr. Sangster: I am unable to say.

Mr. Ham: You do not know enough about the business to be able to say, isn't that the sum and substance of it?

Mr. Sangster: I don't know enough about the circumstances which gave rise to these adjustments.

Mr. Ham: I am not talking now about the adjustment. I am talking about the knowledge that you have as to whether items of this class, which deal with apparatus for voltage running from 6,000 to 13,200, could have anything to do with street and park lighting system.

Mr. Sangster: They do not appear to have any connection with street and park lighting system.

Mr. Ham: And yet you say that in spite of that you do not feel like changing your report, or that your report ought to be changed?

Mr. Sangster: Before making a statement which would involve changing this report, naturally I would like to be able to place myself in possession of the whole circumstances.

Mr. Ham then made this statement: "Mr. Chairman, it seems to me, having made a request for intersectional adjustments of two classifications, that our desire or our determination to go into this matter further or not depends, to a large extent, upon whether the Commission is satisfied, from this brief examination of the correctness or incorrectness of the intersectional adjustments. We have taken up the first sheet of the first page that was handed to us. It will take a vast amount of time to go into all of these matters. I know that from a casual examination the errors are gross and frequent, but whether we are to be forced to prove that before this Commission or not seems to me to rest largely with the Commission.

Chairman Kutz: I think it is first important for the company to show how many errors in the intersectional adjustment, if errors there be, will affect the result that the Commission is striving to secure, that is, the original cost of the property of the Potomac Electric Power Company now in service.

Mr. Ham: If the Commission attaches no importance whatever to the classification as contained on page 13 of the report, that would cover one aspect of it. If, however, the Commission is to be informed in regard to the subdivision of accounts as contained on page 13, then it becomes necessary for us to go into it much further.

This matter was discussed at length by representatives of this company and the Commission as shown in the records from page 1330 to 1334 on which page Chairman Kutz said:

"I think I have announced the position of the Commission very clearly when I stated that I did not see how any errors, if errors there be, in the intersectional adjustment, would affect the result that the Commission is after."

To which Mr. Ham replied:

"I am only making these suggestions to save this great amount of time that would be required or consumed in preparing these data or the details of intersectional adjustments, of which you understand the company is not at the present time informed at all. We do not know anything about what intersectional adjustment Mr. Sangster has seen fit to make, with the exception of these two groups here.

352 Chairman Kutz: Why should not the company then confine itself to pointing out errors in the totals irrespective of the intersectional adjustments?

Mr. Ham: If the Commission is not to be influenced by the classification which is contained on page 13, we are perfectly willing to proceed on that theory. I mean to say whether, in making their findings, they are going to pay any attention at all to the amount set opposite each one of the subdivisions of accounts mentioned on page 13, that is exactly what I meant. On this one sheet, which is the first sheet we have investigated, we find more than 50 per cent of

the items—practically all of them—but we have only taken up four, which could by no possibility be charged to street and park lighting system, and yet he has transferred them from transmission system to street and park lighting system. The effect of that is, assuming they do not affect the total and final result, they understate our transmission system and overstate our street and park lighting system to the extent that the errors exist to which I have called attention.

Chairman Kutz: The Commission does not feel that it can go to the extent of compiling and furnishing to the company the details of the intersectional adjustments other than those it has already furnished to the company. We do not feel that these intersectional adjustments possess any particular bearing in this hearing.

Mr. Ham: Then I would ask, Mr. Chairman, inasmuch as the intersectional adjustments affect the amounts set opposite each of the classification of accounts on page 13, that that will be ruled by the Commission as having no weight in this case. I am not asking the Commission to waive any consideration of the total expenditure but that it will give no weight to the distribution of that total expenditure as classified on page 13 of the reports.

Chairman Kutz: The Commission does not feel that it can announce at this time its position any more clearly than it has already announced it.

Commissioner Brownlow: The Commisison does not know what testimony the company will present.

Mr. Ham: We shall certainly present no testimony which will have anything to do with the classification that Mr. Sangster has prepared, because we do not even yet know what is in his classification. It is an impossibility for us to proceed following his classification.

Commissioner Brownlow: Let me ask one question of you, Mr. Barbour. You ask whether the Commission will give consideration to these classifications? In reaching the Commission's final judgment as to the figure which will represent the total amount of money expended by this company, in what way do you mean that the Commission would be affected by a consideration of the classifications? I want to get what is in your mind.

Mr. Barbour: A question in my mind is whether you would give it consideration, for instance, as corroborative of the totals that are found as the basis, that merely because he has divided them up this way and is able to state them in detail, therefore that is a corroboration of the total he has arrived at. We are not asking you to disregard the fact that Mr. Sangster thinks that six million or even seven million is a correct basis. But we are satisfied that whatever may be the correctness of the total figures, that this subdivision which he has made out of his totals is wrong. We can demonstrate it beyond a peradventure of doubt, but it is going to take time.

Commissioner Brownlow: Suppose Mr. Sangster had made none of the intersectional adjustments, the total would be the same.

Yes, but each of these amounts would not be the same; the subdivisions would be different.

353 Chairman Kutz: The Commission does not accept the com-

pany's conclusion apparently that it has demonstrated the inaccuracy of the intersectional adjustments as made.

Mr. Ham: You mean further cross examination along the same line will tend to influence the Commission?

Chairman Kutz: No, but I am hopeful that we will have a chance to question some of the company's representatives on these very items that are under discussion this afternoon. In other words, even though the Commission feels that the intersectional adjustments have no influence on the final result, it is unwilling to let the record stand as it now is concerning the items that have been under discussion this afternoon. It is the purpose of the Commission to seek additional light in regard to these items, and to determine whether or not the adjustments as criticised were properly made.

Mr. Barbour: The extent of our employes' knowledge is just what appears on the fact of these papers, the vouchers themselves, and the different items about it, coupled with the fact that the people who were in charge of the accounting at that time directed these accounts to be charged as they were in the books, which I think is a very important element to prove. Of course it is the duty of the man conversant with all the books at the time to allocate those figures.

Mr. Ham: I do not know that I understand it exactly, but if the Commission rules that it is going to give weight to the intersectional adjustments, then we now make a demand for information as to what makes up those intersectional adjustments.

Chairman Kutz: It is the Commission's purpose to go into the question of the accuracy or inaccuracy of the intersectional adjustments only to the extent that the company goes into them.

Mr. Ham: I know, but we cannot go into them if we do not know what adjustments have been made.

Chairman Kutz: That is, the company has taken the position that the intersectional adjustments were improperly made—I do not know for what purpose, unless it be for the purpose of discrediting the Commission's employe, or the value of his investigation. It is the purpose of the Commission to meet as far as it can, criticisms of that character, but only to go into the intersectional adjustments as to the extent that the company does because we feel that they do not influence the result one way or the other.

Mr. Ham: Then we now make formal demand for the details of the intersectional adjustments.

Chairman Kutz: The means at the disposal of the Commission will not warrant their being furnished.

Mr. Bowen: On the ground of the refusal to furnish the details of intersectional adjustments, we now move to exclude the report of Mr. Sangster and all the testimony founded thereon.

Chairman Kutz: The motion is overruled.

An exception was noted.

Mr. Ham: The amount you have eliminated from the books of the company in the account "Street and Park Lighting System" is stated to be $19,200.58. Did you not state this morning that that amount contained no poles?

Mr. Sangster: Yes, I did. The word "poles" should be excluded from this statement.

Mr. Ham: What was the reason for excluding this $19,200.58?

Mr. Sangster: So far as we could ascertain this $19,200.58 354 referred to expenditures for properties made by the United States Electric Lighting Company, which is not now in existence.

Mr. Ham: How do you know it is no longer in existence?

Mr. Sangster: We find that a number of smaller items were charged in the accounts of later dates which so far as we could determine had superceded the properties in this schedule.

Mr. Ham: Street and Park Lighting System, $19,200.58. What are those items to which you last referred.

Mr. Sangster: Those items include a number of small items, globes, fixtures and repair expenditures.

Mr. Ham: That is not clear to me at all. Do I understand that this list of items aggregating $19,200.58, includes items which are duplicated in property account?

Mr. Sangster: Not in the property account of the United States Electric Lighting Company, but we think so far as we have been able to ascertain from a study of all these expenditures, that the fact of these items being in the property account, and the fact that that property account was a general account, it appears that the items were lost sight of. In other words, that when the globes and fixtures and such other items as are mentioned here were replaced, they were again charged to the plant account.

Mr. Ham: What is there that justifies that conclusion? That is what I call duplicating plant account. If you have items charged to capital account and then renewals were made and renewals were charged to capital account, that is what I would call a duplicate charge to capital account. What are those items to which you refer?

Mr. Sangster: Then I will state it this other way: That the displacement of this property here being in the property account of the United States Electric Lighting Company, was not recorded in the later accounts kept by the Potomac Electric Power Company. That is, from our study of all these transactions.

Mr. Ham: Do you mean that the property itself was not replaced?

Mr. Sangster: Yes, but that the replacement was charged into plant account.

Mr. Ham: On what do you base that, that the replacement is charged to plant account?

Mr. Sangster: We find that the accounts continued to show purchases for fixtures and other accessory apparatus, electrical supplies and so on, which being short-lived properties, would necessarily disappear finally.

Mr. Ham: What items in this list of $19,200.58 do you claim are or were improper charges to capital account at the time that the expenditures were made?

Mr. Sangster: At the time that the expenditures were made we think they were charged to the plant account very properly.

Mr. Ham: If the whole $19,200.58 was properly charged to capi-

tal account at the time, why do you say that there is in plant account the cost of replacing them?

Mr. Sangster: Our study of all these accounts, dealing with items of this nature, shows that numerous items were being charged in from time to time continuously.

Mr. Ham: Is there anything about that that is extraordinary or unusual? In a period of years would there not be a good many supplies bought and properly charged to property account?

355 Mr. Sangster: Yes, sir, but I have already explained that we find these old supplies and repair items—lamps and such like, charged into property account of the United States Electric Lighting Company, and apparently lost sight of.

Mr. Ham: Let us not talk about too many things at once. What are the repair items?

Mr. Sangster: I notice one here in February, 1883, repairing one 15-light field, $20.34. In 1885 we have 40 lamp magnets repaired, $77.57.

Mr. Ham: What date is that?

Mr. Sangster: 1885, page 3. These are some of the repair items.

Mr. Ham: Are there any other apparent repair items?

Mr. Sangster: Glancing over the 12 pages I do not see any others. These are the apparent repair items. The presence of these repair items in the schedule points to the possibility of there being others.

Mr. Ham: What are the others, if there is anything? To indicate there are others, we would like to know what they are.

Mr. Sangster: There is no definite indication.

Mr. Ham: Did you examine the operating expense accounts of the company to see whether these items were replaced through operating expenses?

Mr. Sangster: No in detail; no, sir.

Mr. Ham: To what extent did you do it?

Mr. Sangster: We made a general survey of the operating expense accounts.

Mr. Ham: Did you find for instance that there were or were not any globes charged to operating expenses?

Mr. Sangster: There were some, yes. He does not recollect any cut-outs; that the natural place to look for replacement would be in the maintenance account.

There may have been some replacement through maintenance accounts but from the general situation in regard to all these charges, he would say "We came to the conclusion, in regard to the general situation in regard to these charges, that some repetition had been made in the books of the company. There was also the further consideration that the company was required, of course, to take down the overhead lines, and that again we would find that some of the property had been displaced prior to 1898." That they transferred all of the property of the United States Electric Lighting Company of this character into street and park lighting and into poles and overhead lines.

Mr. Ham: And then wrote it all off, is that the idea?

Mr. Sangster: Practically, yes.

Mr. Ham: That is, you have written off the entire investment of the United States Electric Lighting Company in the class of material mentioned here as making up this $19,200.58.

Mr. Sangster: Yes, sir.

Mr. Ham: Then these things should properly have been renewed and charged to operating expenses?

Mr. Sangster: Yes, sir, should properly have been done so.

Mr. Ham: And that is the place to look whether they were maintained or not. Simply because these things were all what you might call short-lived, and you know that the original installation has gone out of existence, you remove it from the capital account?

356 Mr. Sangster: No, sir, not entirely.

Mr. Ham: Is not that it mainly?

Mr. Sangster: No, sir.

Mr. Ham: What item of this classification did you leave in the capital account of the United States Electric Lighting Compant?

Mr. Sangster: We have our section dealing with street and park lighting, which we think includes all that is now in existence.

Mr. Ham: That was after what date?

Mr. Sangster: After 1899.

Mr. Ham: Yes, but I am talking about the original installation. You have already stated in your judgment that the items of $19,200.58 were properly charged to plant account by the United States Electric Lighting Company at the time?

Mr. Sangster: Yes, sir.

Mr. Ham: Now you say because those items are no longer in existence, that they should be written out of capital account?

Mr. Sangster: I say that the accounts of the United States Electric Lighting Company appear to us to show the original installation, and later a repetition of these items.

Mr. Sangster: The Potomac Electric Power Company accounts show that we have the 863 poles under Section 10, and the lamp fixtures and fittings in connection with these poles.

Mr. Ham: Do you think that the 863 poles and the fixtures that are attached to those poles, installed since what date?

Mr. Sangster: Since 1899.

Mr. Ham (continuing): Installed since 1899 have anything to do with installations made by the United States Electric Lighting Company back to 1882.

Mr. Sangster: We think that these were largely displaced in 1899. To the best of our knowledge that is what happened to those original installations.

Mr. Ham: Well, now, these things do not have anything to do with the overhead system. If they had had anything to do with the overhead system you would have included them with your overhead system and transferred them through your intersectional adjustments to your overhead lines and poles. These are things that had to do with the street and park lighting system of the United States Electric Lighting Company installed from 1882 down to 1899. They are things of a fragile nature, of a temporary nature; they are things which properly even then and now, should be replaced through oper-

ating expenses. But no entry made debiting or crediting plant account. For instance, you take down or break a window in this building. That window was originally properly chargeable to capital account. We break a pane of glass up there. Are we going to make a credit to plant account for the original pane of glass and charge to plant account the cost of a new pane of glass that we put in there?

357 Mr. Sangster: No, sir, we would not today, but I am trying to explain that so far as we can ascertain, the Potomac Electric Power Company has charged into the accounts the cost of the new pane, using that as an analogy.

Mr. Ham: Refer us to any entry in the books of the Potomac Electric Power Company that leads you to believe that we have charged as a new installation the replacement of old installations.

Mr. Sangster: We have knowledge that a great number of street poles, street lamps, were taken down.

Mr. Ham: It seems to me the knowledge that you have about lamp poles has been the kind of knowledge that led you into very gross error. You sort of some how or other missed a whole lot of poles, instead of basing your report upon facts.

The question being repeated, Mr. Sangster replied:

"My answer to that is that we find against the 863 poles in Section 10 the lamps, fixtures and fittings that apply to those poles."

Mr. Ham: Is there any impropriety in that?

Mr. Sangster: No, sir, but we think we have all the poles and fixtures.

Mr. Ham: But if as a matter of fact 863 poles, with the necessary fittings and fixtures, do not include the total now owned by the company, what becomes of these other items that you have eliminated?

Mr. Sangster: The same would apply to other items eliminated here as was stated in connection with poles.

Mr. Ham: They should be restored.

Mr. Sangster: Yes.

Mr. Ham: If we can find the poles.

Mr. Sangster: Yes, sir.

Mr. Ham: In other words, all the lamp fixtures and fittings that have been charged to capital account by the Potomac Electric Power Company have to do with 863 poles installed since 1902.

Mr. Sangster: That is correct, yes, sir.

358 *Line 7, Section IV.*

Mr. Sangster: There is the question about a booster involved in this inventory. We unearthed this booster in the company's transformer account after we had completed our investigation of the electric power equipment. For some reason or other the accountant who went over these inventories of substation equipment, taken from the company's card system, failed to make a note that this booster was in sub-station 14, according to that inventory. Consequently when he transferred it to electric power equipment he

could not find that any booster had been purchased the year it was installed in the substation, namely, 1912, and erroneously eliminated it in this statement. So that the $5,050 should be restored to the electric power equipment section.

359 *Lines* 11, 12, 13, 29, *and* 30.

Mr. Bowen: Why have you excluded cost of organization, financing, etc., mentioned on page 10?

Mr. Sangster: Such items are stated separately on page 15, so far as they have been charged in the plant account; you will find organization, etc., of Potomac Electric Power Company, for instance, as one of the items which might come under the term you name.

Mr. Bowen: What have you done with them? Just suspended them?

Mr. Sangster: I simply stated them separately so that the Commission may determine for itself what should be done with them. I have stated it in this way because I think that everything that was charged to the plant account should be brought to the attention of the Commission.

Mr. Bowen: You do not mean then by your report to exclude those items?

Mr. Sangster: Not in the sense in which I have excluded the equipment which we find was sold, scrapped or abandoned.

Mr. Bowen: Does the uniform system of accounts for electric lighting companies in the D. C., effective January 1, 1910, require cost of property on that date to be shown?

Mr. Sangster: The classification requires the company to show the amount of its fixed capital prior to December 31, 1909. The instruction that I have referred to is on page 57 and reads as follows:

"Fixed capital, plant and equipment, December 31, 1909. This account includes the cost of plant and equipment and other property devoted to gas or electric operations, at the figures at which such property was carried on the books of the corporation on December 31, 1909.

"When any property included in this account is retired the amount at which it is charged therein (estimated if not known) should be credited to this account. The amount of depreciation or other amortization thereon applicable to the period subsequent to December 31, 1909, should be charged to account No. 37, Accrued Amortization of Capital, proper account being taken of any salvage, and the remainder of the amount originally charged to capital being concurrently charged to profit and loss account, unless there was carried on the books at that date a reserve to cover retirement of capital from service, in which case a concurrent charge should be made to such reserve account."

Mr. Bowen: Does that system of accounts contemplate or require any adjustments or corrections to be made in property account prior to January 1, 1910?

247

Mr. Sangster: No.

Mr. Bowen: Then you did not follow this requirement of the Commission in your report?

Mr. Sangster: No.

360 Mr. Bowen: What do you mean by saying it was the first duty of the accounting department to find out as nearly as practicable the amount of money expended on the same property now in existence?

Mr. Sangster: I mean by that that we had certainly to fulfill the requirements of the act, first to state the amount of money expended on the property now in existence.

Mr. Barbour: Where do you get the expression or the term "Now in existence?"

Mr. Sangster: That is my interpretation.

Mr. Barbour: You do not find it in the law?

Mr. Sangster: I have not said so.

Mr. Syme: You mean the property in existence at the time of the valuation?

Mr. Sangster: Yes.

Mr. Bowen: Mr. Sangster, can you cite any decision of a court or commission upholding your theory of accounting in the manner in which you state you formulated it?

Mr. Sangster: I do not think that original cost has heretofore been so rigidly ascertained, generally speaking. I am not familiar with every case that may have come before a court or a commission, but generally speaking, I do not think that original cost has been so rigidly ascertained as in this present case. So far as I know, the accountants did not attempt to make such a stringent analysis of the accounts, and state just in what manner they had found the present property.

Again on page 1380:

I know of no case where orginal cost or amount of money expended was presented to a court or commission in the manner I have carried out this present case. Mr. Pillsbury loaned us and we consulted his inventory on certain of the power station apparatus, in order to satisfy ourselves as to certain points.

Referring to the inventory of transformers relied upon by the witness, Mr. Sangster testified as follows:

Mr. Ham: Do you know whether or not this was an inventory in what is the usual acceptation of the term, as showing the details which went to constitute property supposed to be covered by an inventory?

Mr. Sangster: I do not.

Mr. Ham: Might it not have been simply a record, as you have described it yourself, of the total installation of transformers that existed in 1906, showing accumulately what was added to and subtracted therefrom?

Mr. Sangster: It might be so, yes.

Mr. Ham: And the purpose of this information might have been entirely different from that of keeping an inventory of the Company's property?

361 *Line 7, Line Transformers.*

Mr. Ham: In other words, the amount that you have stated in your total of line transformers and devices is arrived at in two different ways, as you now describe it, although this is the first time that you mentioned the fact: First, you have taken the inventory, what you claim is the inventory, of the transformers, put some estimated prices, or actual prices—put some prices on them, then to that you added a few items covering the cost of devices that you found entered in the Transformer Account. Is that correct?

Mr. Sangster: Yes; that is quite correct.

Mr. Ham: Where in your report does the original cost of the present exist- devices of the company show?

Mr. Sangster: So far as we could ascertain them, they are shown in the Transformer Account, so far as we know of such charges.

Mr. Ham: After this very searching and critical examination that you made of all of the Company's accounts, over all of this period, you come now and seriously state before this Commission that the best that you could do was to find devices which aggregated slightly over a thousand dollars?

Mr. Sangster: There may be devices charged to other accounts or recorded in other accounts which we would not know as having reference to transformers.

Mr. Ham: I do not say it has reference to transformers. There is no intention to limit it to transformers. I am trying to include in this account what you said you instructed your subordinates to do, to include in this account the same items which are mentioned in Account E 323, Line Transformers and Devices. I am trying seriously to show those items in your report, if at all. I do not believe you show them at all. If you do, we would like to know it.

Mr. Sangster: I wish to make it quite clear that we have shown that so far as they are charged in the Plant Account on the books of the Company.

Mr. Ham: If it is a matter of fact that the company has devices largely exceeding this amount, then you have failed to look in, perhaps, operating and maintenance accounts, where these devices were first charged.

Mr. Sangster: If there are devices charged to operating expenses which would form a proper charge to Plant Account on a strict reading of the Interstate Commerce Commission classification, we do not have these expenditures in our report.

Mr. Ham: Where did the Company get its present devices which are properly charged in Account E 323, Line Transformers and Devices? I mean the Company owns far in excess of $1,100. Now, that we do own it is very largely substantiated by the examination made by Mr. Pillsbury.

Chairman Kutz: Do you mind stating for the information of the Commission what you mean by "devices"?

Mr. Ham: I am referring to the classification of accounts of the Public Utilities Commission, which says that we are to include in

the account, Line Transformers and Devices, the cost of all line transformers, both overhead and underground, pole line lightning arresters, transformer cut-out boxes, line cut-out boxes, switches, etc., in the distribution system. Now this is from the classification of accounts of the Interstate Commerce Commission, which has subsequently been adopted by the Public Utilities Commission. Now Mr. Pillsbury states that he has followed that classification. He examines physically the property of the Company and he finds as devices, $17,361.90, included in this account.

Chairman Kutz: My question is answered.

Mr. Ham: Now the point which I want to suggest to Mr.
362 Sangster is that he has adopted an inventory as the basis of determining the property in this classification which is now owned by the Company. True he did find some records which had something to do with transformers. Those records had nothing to do with devices, and he has absolutely and totally omitted from his statement of existing property some $16,000 worth of property which Mr. Pillsbury finds in the District of Columbia, to say nothing about the amount.

Chairman Kutz: Let me ask Mr. Ham: What the practice of the Company has been with reference to these devices. Have they been charged to Plant Account?

Mr. Ham: Certainly, in the main. That is the place where, since January 1, 1910, we would charge all new installations of additional apparatus coming under that classification.

Chairman Kutz: Where were they charged prior to that?

Mr. Ham: I would have to go back through each one of the accounts of the Company. Of course, as we say, in the beginning of this Company it had only one account in which it consolidated all of its capital expenditures. As time went on, they became a little more advanced in the accounting, and they adopted first one classification and then another, trying to keep abreast of the times. Now, I could answer the question of the Chairman by going right back to the accounting and seeing in what account they intended to put items of this category.

Chairman Kutz: Do you find that in Mr. Sangster's report he has eliminated $16,000 worth of devices?

Mr. Ham: He has omitted to state them in our Capital Account.

Mr. Sangster: Mr. Chairman, this company, the Potomac Electric Power Company, has kept a transformer account ever since 1899. In that account the Company has charged the actual cost of transformers that they purchased. We could not use the purchases of transformers as a sufficient indication, or use it practically as a sufficient indication of the number in service or number on the line as of June 30, 1914. We accepted this inventory of which we have so much heard this morning as giving the number of transformers in service at the end of each year, beginning with 1906. For ascertaining the cost of transformers, or estimating the cost of these transformers, we used the average prices paid by the Company shown in this Transformer Account for each year against the transformers increased in that year. We have allowed all that

the Company shows in that account or in their charges except some small items which were already gone over in the direct testimony, and given on Table 2, of Section 11, amounting to $490. That was the total elimination.

Chairman Kutz: In other words, then, you do not eliminate $16,000 worth of devices from the transformer account?

Mr. Sangster: There never was $16,000 worth of devices in that account, from 1899.

Commissioner Brownlow: Did I understand you awhile ago to say that in addition to the inventory of transformers you allowed, in Plant Account, such devices as you found recorded in that account?

Mr. Sangster: Yes, sir. Such devices as we find charged in that account we have allowed.

Mr. Ham: Allowed where?

Mr. Sangster: In this Section 11, Exhibit A, amounting to that $1,000.

Mr. Ham: Are there not some other items that were eliminated by you in the $19,000 odd we were speaking of yesterday?

Mr. Sangster: I am speaking of the period from 1899.

363 Mr. Ham: What was included in transformers from 1899 down to 1909 in the account on the books of the company? It did not purport to cover any devices during that period, did it?

Mr. Sangster: My point is that we have allowed all that that account shows except this item here of $490 eliminated.

Mr. Ham: The trouble, Mr. Sangster, is that, probably without intending it at all, you confuse me any possibly others. You pretend to claim that you purposed putting into this line of transformers and devices account not what the Company showed in Line Transformers and Devices Account, you did not pretend that for a minute, but you do pretend that you put into that account the investment of the Company in items of that character. That is the only object of your making this searching examination of the accounts and making these intersectional adjustments. Is that not so?

Mr. Sangster: Our object was to state all the expenditures which the Company showed in its Plant Account. If it were practicable to investigate further and to adjust these expenditures by reason of a knowledge of charges made to other accounts outside of Plant Account, we did it, so far as we were able to.

Mr. Ham: You have made intersectional adjustments affecting the account of Line Transformers and Devices?

Mr. Sangster: Yes, sir.

Mr. Ham: Which the Commission has denied us access to as to the details of those adjustments.

Mr. Sangster: You have not the details of this $3,761.51 added to the transformers.

Mr. Ham: That consists of both additions and deductions as the net figure?

Mr. Sangster: Yes.

Mr. Ham: And you admit that the only devices that you have

included in this account are the devices purchased since January 1, 1910?

Mr. Sangster: I should say from 1899, but I cannot say positively.

Mr. Ham: Let us have the details of the items which make up this $1,100 shown on page 199 of your report.

Mr. Sangster: I do not have the details. If you mean for that date, possibly there were no charges prior to 1910.

Mr. Ham: That is what I want to find out, if you can state, either that they do or do not include expenditures prior to 1910 or devices.

Meters.

Mr. Bowen: Will you turn to your report that deals with meters. Just explain how the tables on page 208, I believe, were gotten up, and tell us how they were prepared.

Mr. Sangster: Let me first read the note on the preceding statement, Exhibit A, which says that "The number of meters at this date," meaning September 30, 1902, "is obtained from the company's inventory record as of December 31, 1902."

It was adjusted for meter purchases and sales for the period from September 30, 1902. The meters are not classified in this inventory. A general average price has been adopted in stating the cost of these meters, and is computed from total purchases by the United States Electric Lighting Company during the period from September 30, 1899, to September 30, 1902, the price being based on approximately 1,581 meters, that is to say, out of 3,649, we have priced the 3,649 on the basis of the purchase of 1,581 meters.

364 Mr. Ham: From what period is that, that is, the last one?

Mr. Sangster: From September 30, 1899, to September 30, 1902—three years.

Mr. Ham: You did not pay any attention to the cost of meters purchased prior to 1899?

Mr. Sangster: No, sir.

Mr. Ham: And you do not know whether meters at that time cost considerably more than they do now or subsequently to that date?

Mr. Sangster: I don't know now. We would have had that point in mind when we used this period. In order to agree with the inventory when we came out at the end of the journey, we found that instead of crediting 306 meters we had to credit 256 meters against this $4,907.10. So that we have, in a sense, used an arbitrary figure for the number of meters in this final credit.

Chairman Kutz: If meters cost twice as much now as they did originally, wouldn't you feel that you were warranted in increasing your capital to the extent of the difference in cost?

Mr. Ham: No, sir; we do not do it. Our whole property all the time is being replaced at a more expensive price than the original installation without any change in the capital account. Take it right today, replacements of cable and copper are being made in

our property account at twice the cost of the original installation, but no entry is being made in the capital account.

Mr. Syme: To what account do you charge it?

Mr. Ham: Maintenance.

Mr. Sangster: We were speaking of the meters, and I stated that it would not be contrary to the instructions of the Interstate Commerce Commission to credit meters account when a meter was taken out and charged at the cost of the new meter.

365 *Coal Hoist Discussed, from Page* 1437 *to* 1452.

Mr. Barbour: Now there is some question about the existence of this coal hoist, and I am coming down to the particular details with regard to a certain coal hoist. Do you still desire this Commission to understand you as saying that to the best of your knowledge and belief that coal hoist is not in existence?

Mr. Sangster: No, sir. I would feel, before making a statement like that, that I should have an opportunity to investigate the circumstances which you have raised.

Mr. Ham: This coal hoist was installed in 1903?

Mr. Sangster: The coal hoist I referred to on page 84½ was.

Mr. Ham: And when was the sale of this motor?

Mr. Sangster: In 1909.

Mr. Ham: Is this the same coal hoist that is referred to on page 49 of your report as being still in existence?

(Reading:)

"Reconstructing coal hoist destroyed by fire, $1,001.69, less $296 reserved for insurance, $705.69, one-half charged to construction, $352.84, being the property still existent at substation No. 12."

Mr. Sangster: I am unable to say.

Mr. Ham: Will you, at a subsequent hearing, state whether that is the same coal hoist?

Mr. Sangster: I will endeavor to ascertain, yes.

366 *Line 7, Section III, Elimination.*

Mr. Ham: In your direct testimony you did not state the reason for the elimination of the item on page 83, amounting to $82,941.98. I do not want to go into the details of that now any more than to ask you whether that was charged off because it was superseded or what?

Mr. Sangster: That was eliminated because we found an entry in the books representing a deduction for the estimated selling value of the engines in 1909, from which we concluded that the engines were removed from the plant account for the purpose of sale.

Mr. Ham: And that justified you in the conclusion that everything in addition to the engines which is included in the item of $100,666.98 has gone out of existence?

Mr. Sangster: We made that assumption owing to the absence of any further information which we could obtain than what was shown on the books, the presumption being that when the engines were displaced all the apparatus in connection with the installation of those engines would also be displaced. I frankly say I might be wrong, but the best of our judgment was at the time, considering these entries when the engines were displaced, all that was installed with the engines would also be displaced.

Mr. Ham: The next item is $550.00. For what reason is that eliminated?

Mr. Sangster: For the same reason.

Mr. Ham: The coal chute on page 84½, $389.91. Why did you eliminate that?

Mr. Sangster: That was an elimination based upon the understanding that there were no coal chutes in that power station at the date of June 30, 1914.

Mr. Ham: You found nothing on the books to show that it had gone out of existence—no credit or entry of any nature?

Mr. Sangster: No, sir.

Mr. Ham: Is the same true of the coal conveyor, $6.50?

Mr. Sangster: Yes, the same is true in that case also.

Mr. Ham: Why did you eliminate the item of $60.75?

Mr. Sangster: That is described as an expenditure on tearing down old buildings and clearing ground. I think that should be more properly charged to maintenance.

Mr. Ham: The next item, $1,029.76. Why is that eliminated?

Mr. Sangster: That is the cost of moving a boiler from one location to another, and has been eliminated for the reason that I believe such items should not be charged to plant as moving expense.

He excluded a charge of "Gem Boiler Tube Cleaner," $505.83 because he excluded a portion of the boilers at the same location and his assumption was that because the boilers had been moved that this Boiler Tube Cleaner had also been sold or scrapped, notwithstanding the fact that other boilers were still in service.

367 Mr. Ham: There is no entry on the books of the company that, of itself, leads you to believe this is no longer in existence?

Mr. Sangster: That is correct.

Mr. Bowen: So that you- report erroneously states it should be eliminated from the books of the company?

Mr. Sangster: I don't know. I don't think so.

Mr. Ham: If the tube cleaner is still in existence, you must have drawn an incorrect assumption?

Mr. Sangster: Surely.

Mr. Ham: And does it occur to you now that that was not a very strong reason for eliminating it?

Mr. Sangster: I will admit it, Mr. Ham, that it is not very strong.

He also eliminated pipe, fittings, pulleys, etc., at substation No. 12, $242.98, because "We were informed that there were no pipe and fittings or property of that kind in the station at June 30, 1914.

He eliminated the item of $260, reactances coal switches, etc., sub-

station at 15th and H streets, northeast. $260 has been eliminated, because "We were informed that that substation had since been discontinued for use as a substation, and that there was no such apparatus in that substation.

Mr. Ham: Might it *now* have been used at some other location?

Mr. Sangster: Yes, it might.

Mr. Ham: And so far as you know you have not included the cost of that apparatus in any other account?

Mr. Sangster: I have not included that apparatus in any other account, no, sir.

Mr. Ham: You have eliminated the item notwithstanding the fact that you have no details on the books of the company to show it is still out of existence?

Mr. Sangster: That is true.

Mr. Ham: Have you been able yet to prepare the details of the item of $14,893.91, transferred from operating expenses to plant account?

Mr. Sangster: I have the $14,893 in summary form; but we have not in our memoranda here any information as to the accounts that they have been taken out of; we have not noted that here. I recollect that you asked that also in your question, as to which accounts they had been taken out of, but our accounting records do not contain that information.

Mr. Ham: I would suggest, if it meets with the approval of the Commission, that we be furnished with a copy of these items, and that further cross-examination upon the subject be suspended until we have had a chance to examine them.

Mr. Barbour: Would it be possible, Mr. Sangster, for you to designate what accounts they were taken from?

Mr. Sangster: No, sir.

Chairman Kutz: Not without making a new examination of the books.

Mr. Ham: What is the item of $270, appearing as a credit item in the column headed "Transfer from operating expenses," on page 246?

368 Mr. Sangster: That I have still to look up.

Mr. Ham: What is the nature of the item on page 246, plant sold, scrapped and so forth, amounting to $59,442.47?

Mr. Sangster: These are undistributed credits for depreciation, which we were unable to apply to specific accounts. I have stated them here in total.

Mr. Ham: Will you please refer to the book entries from which that figure is derived?

Mr. Sangster: I can give you a list of the items, the same as in the other cases. That would have to be prepared.

Mr. Ham: You got the right item, did you, Mr. Sangster, $59,442.47?

Mr. Sangster: Yes, sir.

Chairman Kutz: What does that item represent?

Mr. Sangster: Undistributed depreciation credits, or credits for sales of plant.

Chairman Kutz: So it is not an elimination?

Mr. Sangster: No; it reduces the total elimination. We have not the details in the report, but I can furnish these if given some additional time. You wish it, I understand?

Mr. Ham: Yes. You have not furnished us the details of the next to the last item in that column, Plant Sold, Scrapped, etc., amounting to $38,325.71. Will you also furnish us the details of that amount?

Mr. Sangster: We do not have the details of that amount. I will explain. Our analysis of the property account showed that a number of items would be transferred to various sections. We came across a great many vouchers for small amounts, tools and hardware, and general supplies, which appeared to have reference to power plant machinery. When it became evident from our own point of view that this apparatus had been discontinued, we felt that we would not be warranted in spending the time in listing these items.

Mr. Ham: We make formal demand for the production of the details of $38,325.71, which have been eliminated by Mr. Sangster from our plant account. In fact, this is one of the items included in the request which I made five or six weeks ago.

Chairman Kutz: You say it is not practicable to furnish this information?

Mr. Sangster: No, sir. I would have to make a re-analysis of the property account in order to comply with the request to furnish the details. It is made up of a great number of small items which we found to cover tools and hardware and supplies of all kinds, apparently in connection with the installation of power plant machinery, the old machinery of the United States Electric Lighting Company, and which we had come to the conclusion had since been eliminated, and it would serve no good purpose to make the analysis of details.

Chairman Kutz: Were they items which were chargeable to plant?

Mr. Sangster: Yes, sir, at the time the entries were made, from 1883 to 1898.

Mr. Barbour: How did you arrive at the figure, if you did not list them?

Mr. Sangster: It is just a balance. After picking up all those items which we transferred to other accounts, we were of course left with this balance of $38,000, which represented all of these smaller items.

Mr. Ham: Were those items smaller than the ones which you had already eliminated or transferred to other accounts?

369 Mr. Sangster: As a general rule they would be smaller.

Mr. Ham: Could they be very much smaller than the items which you have transferred from property account to street and park lighting system, which go down to items of 72 cents, 63 cents, 60 cents, 45 cents, 50 cents, and so on?

Mr. Sangster: Yes, they might be of the same average amounts, small, and some moderately large. At the time we made our investi-

gation of the property account we had not come to any conclusion as to how these items that we have transferred to street and park lighting should be treated.

Mr. Ham: Mr. Sangster, could you say under oath that you know what items go to make up that item of $38,325.71?

Mr. Sangster: Personally, I have no direct knowledge.

Mr. Ham: Did any of your assistnats have any such knowledge? Is is not a fact that this is an unknown balance?

Mr. Sangster: We examined every one of the vouchers, Mr. Ham.

Mr. Ham: I know, but as to what constitutes this $38,325.71, is it not a fact that neither you nor any of your assistants know the items that go to make it up?

Mr. Sangster: Yes, sir; we did at the time we made the examination know each and every item included in the $38,000.

Mr. Ham: How could you know that without being able to produce it? Have you any working papers that make up that item?

Mr. Sangster: No, we do not have working papers which would show that, but as I say at the time we made the analysis, an examination of the property accounts, we looked into every item.

He acknowledged that he had working papers of all other elimination but explained that he would not be justified in spending the time listing so many small items, when it seemed evident that they should be ultimately excluded.

Chairman Kutz: You probably did list the accounts, though, didn't you?

Mr. Sangster: No, sir.

Mr. Syme: He had a total list of all items from which he took certain items, and these were left.

Mr. Ham: Then he arbitrarily eliminates that which he has not previously eliminated in toto?

Chairman Kutz: Have you anything further which you would like to say, Mr. Sangster.

Mr. Sangster: I was simply going to remark that we were keeping in mind an analysis of the property account, scrutinizing every item. In other words, his instructions were that when he came to an item which referred to expenditures, such as I have referred to,
as tools and hardware, and anything which so far as we
370 could ascertain, had reference to machinery, which we then had concluded was not now in existence, he would pass that item and not spend time merely listing it.

Chairman Kutz: How did they arrive at the total of $38,000?

Mr. Sangster: It is the balance after taking out all those items which we noted and listed, out of the total shown in the property account.

Chairman Kutz: You took out of the property account every item that was still in existence, and every item that ought to be eliminated, except the $38,000?

Mr. Sangster: No, sir. We took out of the property account—I do not mean eliminated—we listed and picked up out of the property account a certain number of items which were transferred to

other sections. We did not list items which had reference to tools and hardware, or expenditures on machinery—small items.

Chairman Kutz: The $38,000 represents the balance between the total of the property account and the aggregate of the items which you took out and classified?

Mr. Sangster: That is correct.

Chairman Kutz: Then it would be possible for the company to get that information by working backwards?

Mr. Sangster: Yes, if they were furnished with the particulars of all the other items taken out of the property account.

Mr. Ham: Has the company been furnished with such figures?

Mr. Sangster: No, sir—at least I do not think so; I do not think that those we have furnished you would cover all the items. It was a question of saving time.

Mr. Barbour: And losing money to us.

Mr. Ham: Saving time to you and eliminating from our capital account $38,325.71.

Mr. Sangster: That was the result.

Mr. Ham: Yes.

Mr. Bowen: Mr. Chairman, are we going to hear from the Commission as to whether the witness will furnish the details as they go to make up his conclusion?

Chairman Kutz: I can only call attention to the statement that the Commission has made several times, that we want to furnish everything we can from the record, but we cannot do over again work that has been done in the past two years, confining it to this exclusion of $38,325.71 opposite the property account on page 246 of Mr. Sangster's report; the witness has stated that it is impracticable to furnish that information without a re-analysis of the company's accounts, and that cannot be done.

Mr. Bowen: If the Commission please, we move to restore to capital the sum of $38,325.71, shown opposite property account on page 246 of Mr. Sangster's report.

371 Chairman Kutz: The Commission cannot undertake to rule on questions of that kind at this time. It will take the matter under consideration in reaching its conclusion as to the original cost of the property of this company. The motion to exclude is overruled.

Mr. Bowen: We note an exception.

Mr. Syme: Let it be noted, too, that your motion to exclude does not admit this item as having been passed upon and accepted by the Commission. That is a matter for the Commission's final judgment. I do not propose to have you, when we get to arguing this case in court, to get up and say that by the overruling of this motion the Commission allowed this item.

Commissioner Brownlow: No part of the testimony so far adduced before the Commission has in any way been accepted or passed upon. No conclusion has been reached.

Mr. Barbour: We have been formally notified that the Commission has arrived at a tentative conclusion as to this, and when it appears that it must have arrived at a tentative conclusion from a mani-

fest error, it seems to me that at least the Commission might withdraw its tentative approval of that item.

Mr. Syme: When you made objection to the Commission to any such position being taken, the entire proceeding was adjusted to meet the very objection that you made.

Mr. Bowen: The objections were offered, if the Commission please, in view of your order No. 182, dated May 18, 1916, which among other things recites, "That all the ascertainments hereinbefore and hereinafter referred to are prima facie ascertainments of the Commission made from all available information."

Now we submit that in view of that order the motion to restore the sum of $38,325.71 opposite property account on page 246 of Mr. Sangster's report, is proper. Of course if the Commission overrules the motion all that we can do at this time is to note an exception.

Fearing that it may not be just in the right form, we now formally move to exclude all of the report of Mr. Sangster and all the testimony that is based thereon, for the reasons heretofore urged, and for the particular reason here that he excludes the sum of $38,325.71 from property account without showing any reason therefor or the details upon which his elimination is based.

Chairman Kutz: The motion is overruled.

Mr. Bowen: We note an exception.

372 *Line 7, Subsection IX.*

Underground Cable.

Mr. Ham: With -ference to the eliminations from plant account, of underground cable, $24,618.35, you explained that "in early years the company simply kept one account, "Cable," and in these early years the cable referred to overhead lines. Later on as the underground system was installed and enlarged the company began to record its expenditures for different kinds of cable in proper accounts."

At this point in the proceeding the Chairman stated,

"Then this item really refers to overhead rather than underground cable."

And you answered—

"Yes, sir."

Have you any other reason for eliminating the underground cable than that stated in your direct testimony?

Mr. Sangster: The statement made in direct testimony does not perhaps fully cover the conditions. The $24,618.35 is represented largely by these Eckington items, which were taken over in the original plant and franchise of the Potomac Light & Power Company. These items were partly for overhead and partly for underground cable installation—mainly I think for overhead. Just to identify them—line street railroad car service, $180; street railroad car service, $360; the Eckington line for street lighting, $5,000, and so on. These items amount in total to $19,213.59. The balance is $5,404.76. This is the difference between the installations of the

United States Electric Lighting Company charged to cable account from 1885 to 1890, to which is added an item of $1,624.62 for re-leading; against these items we have two credits for depreciation, one in 1894 for $50,000, the other in 1896, for $7,590.02, making this balance of $5,404.76.

Mr. Ham: Disregarding the items covered by the arbitrary charges for depreciation, the total of the wire and cable that has been eliminated from the plant account amounts to $62,994.78.

Mr. Syme: Disregarding these credits, yes.

Mr. Ham: We will now produce the books of the United States Electric Lighting Company, and ask you to identify the items referred to.

Chairman Kutz: I wish, Mr. Sangster, you would explain for the benefit of the Commission, a little more in detail as to what it is that the company wants you to do.

Mr. Sangster: They wish me to trace, or wish me to identify in their books, the items which go to make up certain totals which I have shown in schedules of this report. I do not know whether by turning to a specific account I will find a total ready to hand, or whether I shall have to consult my working papers and by a process of making up items, refer then to their books so that they can then tell where the items have come from.

Chairman Kutz: The Commission will adjourn until 10 o'clock tomorrow morning in order to give the accountant an opportunity to determine whether it is practicable to comply in whole or in part with the request of the company, within a reasonable time, and at reasonable expense.

373 Testimony was resumed on the following day and the witness then read a list of items making up total for each year shown in statement. (See transcript, 1493-1496.)

Mr. Ham: The items above identified on the books make up the total previously referred to of $62,994.78?

Mr. Sangster: Yes, sir.

Mr. Ham: Did you not testify that in your examination of the accounts of the United States Electric Lighting Company you went back to the original vouchers?

Mr. Sangster: We referred to the original vouchers whenever they could be found. That should be qualified. We may not have seen all the vouchers.

There was then read into the record a number of original vouchers which were held to be fairly representative of all of the vouchers, all of which appeared to be for cables of different character.

Cross-examination then proceeded, page 1503:

Mr. Ham: All of these items that you have identified on the books of the Company were originally entered in an account bearing what heading?

Mr. Sangster: The Property Account.

Mr. Ham: And was there subsequently opened an account known as "cable", to which these particular items were transferred?

Mr. Sangster: Yes, sir.

Mr. Ham: When was that done?
Mr. Sangster: In October, 1892, going back as far as 1885.

The witness stated that in the course of his examination of the accounts, he examined the vouchers which were tendered him today through his assistant whose name he cannot state. When asked what was there in these various vouchers to show that it was the overhead and not the underground cable, Mr. Sangster said:

"I could not tell from the description on this voucher whether it was for overhead or underground construction; that he did not know what kind of cable was used for 165,000 circular mill single E. L. cable; that there were many types of cable; he frequently had occasion to seek assistance as to what use such cable would be put to; and in general he found it would be necessary to interpret these contractions and descriptions through some engineer; that he did not personally consult an engineer as to these; that, there were consultations about the whole question of cable in general, but he could not say as to these items in particular. The witness said that he would not undertake to say what significance it had in 1890, and would admit that he knew little about it.

Mr. Ham: And you do not know enough about the business to know whether 165,000 circular mil*l* single E. L. cable is a class of cable that would have been installed for overhead service or underground service?

Mr. Sangster: I could not give you any reason for thinking so, but I should say it was for underground service.

374 Mr. Ham: If you thought it wa*d* for underground service, why did you say it is "overhead lines"?

Mr. Sangster: I am not aware that I said that it was for overhead lines in describing all of the items.

Mr. Ham: Did not you make that statement to Chairman Kutz in your testimony, page 453?

Mr. Sangster: I will modify that, now that I have had an opportunity to go over these vouchers, and say that the cable account referred to both overhead and underground construction.

Mr. Ham: What cable account?

Mr. Sangster: The cable account of the United States Electric Lighting Company.

Asked to identify on the books of the Company the cable account that has to do with both overhead cables and underground cables, the witness replied:

"The account I am referring to is the one to which all these items were transferred in 1892, that I have just read."

Asked to identify what items are included in that account for overhead service, he said:

"No, sir. I could not from the vouchers."

His understanding is that the cables purchased in the earlier period would cover both overhead and underground construction, but he could not explain how he arrived at that understanding; could not say when he first got that impression; that he first got the impression that his statement to Chairman Kutz was not in

accordance with the facts from reading these various entries this morning. That he could not say when he came to that conclusion.

"What I mean now is that I, this morning, find for the first time that, since I made that statement, I feel it should be modified."

Mr. Ham: Do you feel it should be modified to the extent that $62,944.78, eliminated from our underground cable account, should be restored thereto?

Mr. Sangster: By no means.

Mr. Ham: To what extent, then, do you think your report should be modified?

Mr. Sangster: I do not think it should be at all modified. I base the elimination of $62,994 on the fact that the United States Electric Lighting Company, itself, credited that account in 1894 with $50,000 for depreciation, and in 1896 the account was again credited with $7,590.02, either by the United States Company or the Potomac Company (I am not sure just at the moment which). But here we have credits for depreciation of $57,590.02, for cable, credited directly against those items that I read this morning.

This is the first time that he had brought it to the attention of the Commission that that is the reason for which he eliminated it though he was given an opportunity to make that statement in direct examination, and another opportunity in his examination yesterday when he stood by his testimony given on page 493.

375 Mr. Sangster: I am not attempting to find another reason. I quite admit that Mr. Ham has convinced me that my first statement is not quite correct. I was endeavoring, to the best of my poor ability, to recollect these various circumstances as they were. Had I understood the matter in the light that probably this would lead to an erroneous conclusion as to the real and final reason for the elimination, I should, of course, have straightened the matter out.

Mr. Ham: Have you any reason or do you know that any of the cable amounting to $62,994.78 was used for overhead lines?

Mr. Sangster: I do not know at this time" and didn't know when he testified in accordance with his testimony on page 452, anything more than he does now. He does not know positively that any of this cable has since gone out of existence. He bases his elimination mainly on this depreciation credit made by the United States Electric Lighting Company. In order to understand the situation as fully as I could absorb it, I consulted with the engineers.

Mr. Ham: In other words, because the Company made an entry crediting property account with $50,000 in 1894, you assumed $50,000 worth of property had gone out of existence?

Mr. Sangster: That was the main reason. He bases his elimination from his reading of the general history of this item which he stated was as follows:

"The fact that there were no credits to cable account all through these years leads me to believe that the officials of the Company wished to make good that defect and did so by this entry of $50,000 depreciation.

In stating the investemnt in cables of the Company, the witness had entirely excluded from present property $62,994.78 installed from 1885 to 1891, not considering the depreciation credits. He did not know where the cables were installed and found no specific entries to show that it was no longer in existence and he withdraws any contention that this $62,994.78 in any way refers to overhead lines.

Mr. Barbour: There had been spent in that single year $26,000 for cable?

Mr. Sangster: Yes, sir.

Mr. Barbour: And in the preceding year there had been an expenditure of $16,000 in a single year?

Mr. Sangster: Yes, sir.

Mr. Barbour: And yet up to 1896, you say there is only left of it $5,404.76, is that correct?

Mr. Sangster: That was the conclusion I drew from this depreciation credit.

Mr. Ham: Did the fact that the United States Electric Lighting Company wrote on to its books in 1894, an arbitrary charge of $50,000, have anything to do with the original cost of its cable?

Mr. Sangster: I think it is proper to consider a credit of $50,000 for depreciation against the cost of the cable.

Mr. Ham: Did it not affect the book value and not the cost?

Mr. Sangster: It affected the book value.

Mr. Ham: Mr. Sangster, yesterday you were asked to furnish a list of the credits made for depreciation. Can you furnish those figures now?

Mr. Sangster: Yes: I will read them over to you, Mr. Ham.

These are charges made for depreciation by the United
376 States Electric Lighting Co.

"For the year ended October 31, 1894:

"For boilers	$10,000
"For engines	10,000
"For dynamos	30,000
"For cable	50,000
Total	$100,000

"For the year ended October 31, 1896:

"Boilers	$4,696.84
"Engines	4,524.81
"Dynamos	6,058.44
"Property	55,780.40
"Well account	3,009.29
"Wiring, incandescent account	4,911.66
"Cable	7,590.02
"Conduit	16,985.46
Total	$103,556.92

"For the year ended October 31, 1897:

"Boilers	$20,000.00
"Engines	10,000.00
"Dynamos	20,000.00
Total	$50,000.00

"For the year ended December 31, 1899:

"Boilers	$5,000.00
"Engines	10,000.00
"Dynamos	10,000,000
Total	$25,000.00

"For the year ended December 31, 1900:

"Cost of plant	$30,000.00
Total	$30,000.00

"For the year ended December 31, 1901:

"Cost of plant	$30,000.00
Total	$30,000.00"

These are all charges for depreciation, which were charged to profit and loss account of the United States Electric Lighting Company.

Mr. Ham: These are, in every instance, arbitrary amounts, and in no way refer to property that is definitely stated to have gone out of existence?

Mr. Sangster: These are estimated amounts of depreciation, and do not state definitely that certain pieces of property have gone out of existence although we have been able to apply all of the boilers, engines and dynamos against property which we found to have been sold, scrapped and abandoned, and still are short of the original cost.

There was no specific reference to displacement of cable in the books of the United States Electric Lighting Company; nor as to conduit; nor as to property. They are general credits to the cost of plant.

377 Mr. Ham: When does your report show the abandonment of boilers took place?

Mr. Sangster: In 1885, 1889 and 1900. In 1885, $1,200; one boiler; in 1889, two heaters, $525.

Mr. Ham: Do I understand, therefore, from your previous reply, that the company, in attempting to adjust its property account for boilers, up to that time had written off $13,696.84 for depreciation?

Mr. Sangster: They show that the intention was to displace those boilers in the near future and were providing for that.

Mr. Ham: Was the original cost of boilers of the United States Electric Lighting Company in any way affected by the entry of depreciation made in 1894, $10,000?

Mr. Sangster: Not at the time the entry was made; no, sir.

Mr. Ham: The fact that an arbitrary entry is made on the books of the company for depreciation in no way changes the fact of original cost. You cannot change that fact.

Mr. Sangster: I think that is perfectly clear. All I claim is that we cannot ignore the fact that the company passed through its books two credits for depreciation, and I think it is proper and right to place that credit against the expenditures shown in the books for cable.

Mr. Bowen: We move to strike out all the testimony of this witness founded upon the deduction from capital upon what he terms to be an arbitrary credit made by the company on the books for depreciation, because this witness has not shown that he is qualified to pass upon the question of depreciation in any aspect at all. We submit that the question of depreciation is one that relates to value and not to cost of property, and that depreciation is not involved in a statement of the cost of our property. We also further move at this time to exclude all of the report of this witness and all of his testimony, and conclusions based thereon.

Chairman Kutz: The Commission will give due weight to any evidence that may be introduced, and it does not see its way clear to exclude the testimony of this witness on that point. So the motion is overruled.

Exception noted.

Mr. Sangster: I admit that I have considered entries dealing with credits for depreciation or provisions for depreciation in the accounts of the United States Electric Lighting Company. There was nothing in the entries that he saw on the books that stated the reservation from income of this $50,000, as setting up a depreciation upon any specific property that he could locate or find. I will read what the books state, so that there will be no danger of my conclusions or any personal element getting into it. Here is the entry: "November 10, 1894. The special committee reported as follows:

"Your committee, to whom was referred the question of charging off $100,000 of the accumulated surplus of the company to depreciation of machinery, etc., beg leave to submit the following report and recommendation: We have:

378	"30 dynamos that cost	$90,240
	"14 boilers that cost	56,968
"20 engines that cost		54,508
"Cables that cost		180,000

"We recommend that you credit:

"Dynamo account with	$30,000
"Boiler account with	10,000
"Engine account with	10,000
"Cable account	50,000
"Making a sum of	$100,000"

That is the entry on the books.

Mr. Bowen: Doesn't that appear from a reading of that itself a provision for future depreciation?

Mr. Sangster: Yes, sir.

Mr. Bowen: Then you admit that that entry has nothing to do with any depreciation that had accrued at that time?

Mr. Sangster: It certainly had.

Mr. Bowen: You say one moment that it referred to future depreciation, and another moment you ask to change that answer.

Mr. Sangster: I understood by your question, when you spoke of future depreciation, that you meant future displacements. You are now asking me for my view now, and it was my view that that entry had reference to displacements which were to take place in the near future, and because of that it represented accrued depreciation.

Mr. Ham: In other words, you do not mean the fact that that entry was made showed that there was any property that had gone out of existence?

Mr. Sangster: We are agreed on that in itself.

Mr. Barbour: Wasn't it evidently an attempt on the part of the directors to adjust their property account to what they deemed the then value of that property?

Mr. Sangster: We might put that construction upon their entry, and "value" would be, of course, determined by this accrued depreciation which I developed at that time.

Mr. Ham: Mr. Sangster, in your statement on page 84 appears the cost of original installation of 17 boilers, including foundations, steam piping, fittings and accessory equipment, $77,337.58. Is that the total investment made by the United States Electric Lighting Company for all the boilers that were installed by it down to the time that it constructed what is now known as station "B," detailed cost of which is shown in Section B, table 27?

Mr. Sangster: The boilers referred to in the original installation of 17 boilers covered a period down to 1892. The installation of new plant was made in 1897 ir 1898.

Mr. Ham: The item referred to of $77,337.58, therefore, covers original installation of all the boilers of the United States Electric Lighting Company from 1882 to 1892?

Mr. Sangster: Yes, sir.

Mr. Ham: And not 1899, as stated in your report?

Mr. Sangster: Steam piping and fittings in general are additional equipment, and it is incorre-t perhaps to say 1882 to 1899. It is 1882 to 1892.

379 Mr. Ham: Opposite that item you have stated "Proceeds of sale, $10,221.15; depreciation $40,421.84; total, $50,642.99," leaving amount remaining in accounts $26,694.59, is that correct?

Mr. Sangster: That is correct.

Mr. Ham: Included in this depreciation are the items which you mentioned this morning amounting to what figures?

Mr. Sangster: All the items stated to be for boilers, aggregating $39,696.84. We have applied that total against the original cost of these 17 boilers.

Mr. Ham: Further down on page 81 appears an item, "Original installation of 22 engines, including foundations and accessory equipment, $61,500.03." Does that represent the total cost of installation of engines by the United States Electric Lighting Company during the period from 1884 to 1893?

Mr. Sangster: Yes, sir.

Mr. Ham: From that you have deducted "Proceeds of sale, $14,685.04; depreciation $34,524.81, a total of $49,209.85," leaving an amount remaining in the accounts of $12,290.18.

Mr. Sangster: All those that I read as applying to engines, totaling $34,524.81.

Mr. Ham: On page 140 of your report is included an item "Original installation of electric plant 1883 to 1897, $133,685.38." Does that cover the entire cost of electric plant by the United States Electric Lighting Company during the period stated, and not, of course, including the present station "B" plant shown elsewhere in your report?

Mr. Sangster: It does; yes, sir.

Mr. Ham: Included in the depreciation is how much on account of the items previously referred to of depreciation?

Mr. Sangster: $63,058.44.

Witness testified further that on page 164 of his report appears the original investment for belting, shafting and other miscellaneous equipment in station "B" 1883 to 1895, $5,912; that it represents the total investment of the United States Electric Lighting Company for those items during that period; that it shows no depreciation.

Mr. Ham: You testified a day or two ago of a fire that occurred in 1885.

Mr. Sangster: Yes, sir. Certain entries were passed to the credit of the property account. And entry in 1885 for $13,490.20 is referred to here as an insurance recovered; $13,490.20, and in 1886, $12,000, and then in 1887 of $120, making a total of $25,610.20.

Mr. Ham: Now then, the company received the sum of $13,490.20 from insurance companies, and also charged off a loss of $12,000 on account of property destroyed in 1885?

Mr. Sangster: Yes, sir.

Mr. Ham: And properly credited that item on its books—credited it to property account?

Mr. Sangster: Yes, sir.

Mr. Ham: Did not that cover boilers, engines, dynamos and miscellaneous power plant equipment which was purchased during the period from 1882 to 1885?

Mr. Sangster: It probably did. It must have, and probably also to some extent the buildings.

380 Mr. Ham: Was the cost of the property so destroyed included in the items I have just questioned you about in your report?

Mr. Sangster: Yes, sir. Perhaps not wholly represented in those items.

Mr. Ham: But the cost of the property for which the company not only recovered not only insurance money, but also charged off a loss of $12,000, is the identical property that you say has not in any way been provided for by the company in its accounts, and you are not allowing for them in this statement?

Mr. Sangster: Not in this statement but I have allowed them for it in their property account.

Mr. Ham: Where?

Mr. Sangster: In the net result we have of $38,925.71.

Mr. Ham: And that, Mr. Sangster, is the item that the Commission has ruled that they will not furnish us the details of?

Chairman Kutz: We will take that up after lunch, because we find it is possible to furnish it.

After Recess the witness continued:

Mr. Sangster: I wish at this point to make a statement which is a substantial modification as to what was stated yesterday in regard to the details which we had of property account. I find on referring to my working papers that we did finally make, in our analysis of that account, an itemized list of all the items which it contained. Those which we transferred to other sections—that is to say which we definitely found applied to buildings, steam plant, electric plant, cable, conduit, or any of these other sections—were taken in full. Those which we could not distribute and which were represented by a large number of small items and which are embodied in voluminous sheets, were simply listed with the name and with the amount.

It is possible therefore to ascertain every item which is included in that net result of $38,325.71, which I show on page 246 of the accounting report, as the amount which was finally eliminated from that account. I made last night a rough summary to give you an indication of what items it contained.

The charges, including all those miscellaneous items for tools and hardware, and whatever else they contain, amount to $122,463.88. Against this we have placed the insurance on loss of property by fire, which I read this morning, $25,490.20, together with an additional $120, making $25,610.20; also the depreciation item of $55,780.40, which was credited to property account in 1896, one of the depreciation items I read this morning, and referred to as

property. Also a credit for putting in plant in consumers' premises, $2,641.82—making a total credit of $84,032.42.

These credits deducted from the $122,000 give the $38,325.71, with a difference of $105.75, which we did not determine. It was a very long analysis and we were liable to be a little off one side or another. We did not investigate this difference of $105.75.

Let me further explain that the property account includes charges of $59,500 for stock purchased and delivered to the Edison Electric Light Company for incandescent franchise, 1888, $14,000;
381 for bonds to Edison Company for royalty on stock, 1890, $13,500; draft to settle claim against U. S. for royalties, 1896, $32,000—making a total of $59,500.

There are credits making up the same amount in this property account as follows: Royalty paid Edison Company, stock, March 20, 1888, $14,000; royalty paid General Electric Company, May 7, 1890, $13,500; royalty paid General Electric Company June, 1896, $32,000—making a total credit of $59,500 against the charges of $59,500. These are not included in the net elimination of $38,300.

Mr. Ham: This list that leads to the balance in property account amounting to $38,325.71, eliminated from cost of plant, is one of the items concerning which we asked sometime in July that we be furnished the details of. And as late as yesterday we were denied access to these figures.

Mr. Sangster: As late as yesterday you had not received the details of the $38,000.

Mr. Ham: And yesterday you stated that those figures could not be prepared wihout a very considerable amount of work, which was of such a character that the Commission ruled they would not furnish them to the company?

Mr. Sangster: Yes, sir.

Commissioner Brownlow: And since that time the witness voluntarily stated that he desired to correct his testimony in that respect.

Chairman Kutz: In other words he found that his working papers were more voluminous and more complete than he was aware of.

Mr. Ham: I understand that, Mr. Chairman, but it develops now that instead of eliminating $38,325.71 from our account, for the reason stated by him, that it was made up of a number of small items, hardware, tools and things of that kind, it consists of items aggregating more than $120,000; quite a different proposition. May we ask when we will be furnished with this statement?

Chairman Kutz: I understand it will take about a week to prepare it.

Mr. Ham: We would of course ask that any cross examination which we would desire on any matter contained in that part, would be deferred until after we have had a chance to digest these figures.

Chairman Kutz: If it is possible to meet that request it will be done.

Mr. Ham: Have you been able, Mr. Sangster, to furnish the details of the item of $59,442.47?

Mr. Sangster: Yes, sir; I have them here. The item referred to by you is shown on my report, page 246, the last item in the column,

Plant, sold, scrapped, etc. That has been arrived at as follows: In 1900 the United States Electric Lighting Company credited cost of plant, $30,000, for depreciation, as we had this morning; and a similar amount was credited in the following year, making $60,000. This $60,000 has been reduced by the difference between the amount which was charged by the United States Electric Lighting Company in 1901 to surplus for special construction, and the amount
382 which was subsequently reinstated in the plant account by the Potomac Electric Power Company after the acquisition of the United States Company. The difference was $557.53 making up the $59,442.47.

Mr. Ham: This item of $59,442.47 consists of two items of $30,000 each less an item of $557.53?

Mr. Sangster: Yes, sir.

Mr. Ham: What were these two items of $30,000 each?

Mr. Sangster: Credits to cost of plant made by the United States Electric Lighting Company in 1900 and 1901, and charged off to surplus as depreciation. I have applied these two items against the eliminations that were made in the distribution among various sections.

Mr. Ham: When the company made this credit of $30,000 for depreciation in 1900, do you think that in any way changed the cost of the property of the United States Electric Lighting Company? It changed the book value without changing the cost of the property, did it not?

Mr. Sangster: Yes; I think we are agreed on that position here; and the same is true of the entry made in 1901 of $30,000. When this insurance money was recovered in 1885, there was no investigation of the books to ascertain against what accounts it applied.

Mr. Ham: In view of what has this morning been developed by cross-examination, would it not be a more accurate statement, that the amount remaining in the accounts with reference to electric plant, engine, boilers, and miscellaneous power plant equipment, should be reduced by the amount that was received for insurance and the amount that was charged off for loss in connection with this fire?

Mr. Sangster: Yes.

Witness does not know where the fire occurred or whether it was in property owned by the company or rented property.

Mr. Bowen: Now turning to Sheet 6 of that same section again, I would like to ask you what the item, October, 1884, U. S. E. L. Co., Collender & Company, cable property, $55.75 alludes to?

Mr. Sangster: Personally, I do not know. It is probably an error, but I could not say definitely. I would like to do so if I could.

Mr. Bowen: Suppose, Mr. Sangster, you take November, 1884, U. S. E. L. Co., express on cable property, $17.25, and tell us if you do not think that is an error also.

Mr. Sangster: I would not care to express myself definitely in that case.

Mr. Bowen: Now, with the benefit of all you have had in cross

examination, would you still think it ought to stay in Section 7, Overhead Lines?

Mr. Sangster: I think that it is probably an error.

Mr. Bowen: I see. Now, suppose you take the item December, 1884, U. S. E. L. Co., right after "laying underground cable," express on cable property, $15.15, and tell us if you do not think that is also an error?

Mr. Sangster: There might be some doubt regarding that item also.

Mr. Bowen: Take the item of December, 1884, U. S. E. L.
383 Co., Collender & Company, cable property, $431.67, and state if you do not think that is also an error?

Mr. Sangster: There might be some doubt in that item also.

Mr. Bowen: Take the item of April, 1884, U. S. E. L. Co., Collender & Company, cable, $787.83, and tell us if you do not think that is also an error.

Mr. Sangster: From what I recollect at the present tiime I cannot state. There may be a doubt as regards that item also.

He made similar statements as to the items of May, 1885, U. S. E. L. Co., Collender & Company, cable property, $346.51; November, 1885, U. S. E. L. Co., E. C. Shaw, for laying cable, $10.85; September, 1887, U. S. E. L. Co., J. A. Roebling Sons Company, property, $939.78.

Mr. Bowen: Well, take the item of Roebling, January, 1887, U. S. E. L. Co., Sheet 7, Section 7, J. A. Roebling, $914.46, and state if that does not also appear to be an error.

Mr. Sangster: I would not care to state.

Mr. Bowen: Take Sheet 8, April, 1888, U. S. E. L. Co., freight on lead cable property, $22.32, and state if that is not also an error.

Mr. Sangster: I do not think I could say from the information here. If it is a fact that lead cable was never used for overhead purposes at any time, it would follow that this lead cable item should not be included in this statement.

Mr. Bowen: Take the item of October, 1889, U. S. E. L. Co., freight on cable, $19.61, and state if that does not appear to be an error.

Mr. Sangster: I would not care to make any statement in that respect or for that item either.

He made a similar statement in reference to freight on cable, November, 1889, U. S. E. L. Co., $32.91.

Similar items of $18.72, $40.30, $70.56, $24.30, $36.18, $57.43, $21.44, $54.29, and $27.97 were called to his attention on page 1614 and being asked to state whether he was positive that all the freight there shown to have been paid on cable relates to overhead lines or not, said

"I will make the same answer." I am not positive that they should not be included. This classification or adjustment was made by an assistant. I think he had some reason for doing so.

Mr. Ham: But you do not know what that is?

Mr. Sangster: No, sir.

Mr. Bowen: Is your only reason for saying that you should not

disturb these items last read from overhead lines because you think your assistant might know more about them than you do?

Mr. Sangster: I think my assistant, at the time he was dealing with these items, informed himself as fully as possible in regard thereto, and I would wish to hear what his reasons were before revising his classification. There are quite a number of items which refer to cable, and it is possible that some of the items may have erroneously been included in this statement. As to any particular item, I think it is perfectly evident that I cannot say; but I say that there is a possibility that some of them may have been brought into this list under an erroneous conclusion as to their nature.

384 Mr. Barbour: And you cannot pick out, even in your own mind, those that are erroneous and those that are not erroneous?

Mr. Sangster: No, sir.

Mr. Bowen: What does this report mean when you say that these should be eliminated from cable, because certain overhead lines installed by the United States Electric Lighting Company were placed underground?

Mr. Sangster: This deduction of $47,500 is an effort to adjust the total poles and overhead lines now belonging to the Potomac Electric Power Company. It may be not an exact statement as to what should be deducted because of the requirement that the Company place its lines underground in or about 1898, but we have allowed this to stand as stating a general view of the whole overhead lines account, that it would bring out such sum as would not understate the amount expended, and be a fairly close approximation of the total amount of money so expended on property now in existence.

Mr. Bowen: If the Potomac Electric Power Company now maintains certain overhead lines and poles within the city limits that were installed by the United States Electric Lighting Company, would this make any difference in your report, and if so, how and to what extent?

Mr. Sangster: It would not make any difference.

Mr. Bowen: Why?

Mr. Sangster: For the reason I stated in my previous answer.

Mr. Bowen: Then do you state that all the eliminations shown in Section 7, Overhead Lines, should remain, without reference to whether those same overhead lines are — existence today or not?

Mr. Sangster: Yes, sir.

Mr. Bowen: You state in your report and in your testimony that the reason for the elimination of the overhead lines is because of a requirement of the law. Will you kindly cite us the provision of the law making this requirement?

Mr. Sangster: I will have to refer to certain documents which I do not have here. I do not think I can refer to them readily. The subject has been dropped for a long time, now, and I do not recall where any information along these lines can be obtained.

Mr. Syme: You mean the law that required the lines of the United States Electric Lighting Company to be put underground?

Mr. Sangster: Yes, sir.

Mr. Bowen: I will be glad if you could cite us to any provision of law.

Mr. Sangster: I will look it up for you.

Mr. Bowen: Now, how many items eliminated are for underground cable and labor for underground work?

Mr. Sangster: The items which would have any reference to underground cable are shown in Section 9, underground cable, $62,994.78—part or all of that amount.

Mr. Bowen: No, I am referring to the items eliminated on Section 7 of the overhead lines. You have testified today that there were some entries in there improperly recorded. I want to know if you can separate the material from labor.

Mr. Sangster: No, sir; I could not undertake to do that.

385 Examination of the witness resumed September 22, 1916.

Mr. Sangster: I am not able to cite any specific act of Congress, or other requirement of law, under which the United States Electric Lighting Company was required to place its overhead lines underground. What I had in mind, apparently, was the fact that certain appropriation acts required that street lighting was to be done solely from underground wires. * * *

If I stated that the company was required by law to place its wires underground, the statement may be withdrawn. * * *

The deduction of $47,505.20 was not made solely in connection with that requirement. We find that in or about 1899 or 1900, the company was actively engaged in work which apparently referred to removal of overhead lines and the building of conduits to take care of the distribution system which had been displaced thereby. * * *

The notation in the report is that this item is the difference between original cost and the amount subsequently eliminated from the accounts in respect of property dismantled, sold and scrapped.

Witness had furnished details making up this $47,505.20 which called for the elimination of a great many poles.

Witness has no positive information that any of these poles were used for supporting arc lamps and he does not know that they were not for that purpose and yet were eliminated.

He concedes that in those earlier periods we were in rather a peculiar situation as to the real meaning and character of those entries. The whole subject was studied in a general way. * * *

Mr. Sangster: I should say that it appears probably we have included some arc lamp poles in our list making up the deduction of $47,505.20; and to that extent the amount stated as an elimination is incorrect.

The witness was tendered the books and asked to locate the item in respect to the cost of dismantling the overhead system of the United States Electric Lighting Company and said:

"I there referred to the entry which was, in the first place, charged to reconstruction, the item of $47,494.72 in the journal

December 31, 1900. I was merely referring to this as carrying a reference to changing overhead lines to underground lines," and does not refer to it as the basis for his elimination of $47,000 any further than it contains that reference. Some attention, of course, was paid to the amount, and we figured that the underground construction might be approximately held to be about the same expenditure as the overhead.

He cannot identify on the books of the company the entries that justified the elimination of the $7,505.20.

Asked to specify the amount of money expended in the construction and equipment of the Potomac Electric Power Company as stated in his report, the witness stated:

"The amount of $7,869,655.54 is the amount of money which I find to have been expended on plant and equipment, adjusted, no doubt, for some items which we think have since gone out of existence, and including some charges for cost of removing and some overhead charges. That is our statement as nearly as practicable."

386 Mr. Bowen: Is this the amount referred to in order 182 of the Commission tentatively adopting the same?

Mr. Sangster: Yes, with the qualifications stated. The figure stated does not include the Graceland Cemetery; nor preorganization expense; nor money expended in compensation to the conceiver of the project; nor any expense of financing; nor brokerage and discount though brokerage and discount so far as it has been incurred by the company is stated separately; nor does the figure include development cost or going value; nor the money expended for franchises. We have not considered that question at all, and includes no expenditures for property since July 1, 1914.

The witness was unable to locate an item of elimination, $98.96, "Amount expended on installation of one 5,000 k. w. steam turbine not complete; that on page 258 of the report he notes "There is also a motor and generator for booster set installed in 1899 in this station." And asked where this is included in cost of apparatus in the station on pages 101, 103, and 105 of his report, the witness said: * "This note is placed at the foot of page 2 to explain that we have been unable to identify the purchase of this booster set among various purchases. We have not necessarily identified them all, and again we have not necessarily distributed the purchase among all the apparatus we have found, and we cannot find the purchase of this particular booster set installed in substation No. 2 in 1899. In other words, we cannot tell where it has come from. We may have it in our cost, and we may not, for all we can tell."

Mr. Ham: That is just what we are getting at, that he cannot state that the cost of this motor and generator is included in your cost of existing property, notwithstanding the fact that you know the property is there.

Mr. Sangster: Yes, that is a correct statement.

The same is true of the items not traced to schedules and so indicated on page 262 of his report as to property in sub-station 5, and on page 1642, says:

"In other words, when we have applied all purchases against the various units in these substations, as far as they can be identified, we have a few that we cannot apply on the one hand, and, on the other hand, we have certain pieces of apparatus that we could not place against any purchases."

Mr. Ham: And those are ones you eliminated?

Mr. Sangster: Oh, no.

Mr. Ham: That is what you said, isn't it, that if you could not find they were now in existence and could not definitely place them you eliminated them from property account?

Mr. Sangster: Yes, sir.

Mr. Ham: And, on the other hand, when you found there was property in existence that you could not find what it cost, you did not include it in the capital account?

Mr. Sangster: Where we are positive, or where we have not satisfied ourselves, that the equipment is not in existence, either in that substation for which it was purchased or in any other, we eliminated the item.

Mr. Ham: On page 142 of your report you have eliminated
387 $6,962.61 on account of original installation of rotaries, switchboards, etc. Is not the reason for that elimination that you cannot now identify that property according to the records that you have referred to?

Mr. Sangster: Yes.

Mr. Ham: Because you could not identify it you have eliminated it from our property account?

Mr. Sangster: We could not either identify it or satisfy ourselves that it was in existence; in other words, the evidence was to the effect, as far as we could ascertain, that it was not in existence.

Mr. Ham: Now then, Mr. Sangster, do you say that outside of this inventory you have anything on which to base a conclusion as to this item of $6,962.61?

Mr. Sangster: No, not generally.

Mr. Ham: When you could not identify a piece of apparatus as being now in existence, you eliminated it from our capital account?

Mr. Sangster: Yes, sir.

Mr. Ham: When, however, there was an item in our capital account actually existent that you could not find in our cost accounts, you did not add it?

Mr. Sangster: We did not wish to make any estimates of value in that sense, or of cost. We simply made the statement that we could not trace it so that it could not be lost sight of; in other words, we went as far as we felt we could to protect the company and made these various statements in the appendix. They should be added wherever it is found that they cannot be referred to in particular purchases which we show in our schedule of purchases.

And the witness cannot now refer to any such item of purchase.

And the witness indicated that he had not included the property not traced to schedules indicated on page 260 of his report or on 264 of his report.

"This apparatus is not always described in the invoices or original

information in the same way as it is in the substation inventory. Perhaps that has given rise to this discrepancy or to these differences, but the fact remains that we could not point to any purchases in our schedule as having reference to either the rotary converter or the station transformer. There is a possi ility that they may be there, but it seems more probable that they are not.

Witness cannot say definitely whether he has included in the cost of present property the items not traced to schedules and so indicated on page 266 of his report.

Witness stated: "We did not make any request for information as to identifying property; our requests were intended to be limited to requests for the production of records and they were, in every instance, delivered.

Mr. Barbour: You referred specifically a moment ago to your failure to include a certain booster, which you say could have been avoided by co-operation on the part of the company?

388 Mr. Sangster: Yes, sir.

Mr. Barbour: The company furnished you data showing that that booster was in existence, did they not?

Mr. Sangster: Yes, sir.

Mr. Barbour: And you must have misread the data, did you not?

Mr. Sangster: It it probably not fair or fully correct to say that had we received cooperation in that case it would have avoided the error.

Mr. Barbour: In regard to these omitted items which you still find were omitted from our property account, what co-operation on the part of the company could have made those facts any more apparent to you?

Mr. Sangster: They might probably have told us when the apparatus was purchased, and have given us an opportunity to identify the purchase.

Mr. Barbour: You never asked for any such information, did you?

Mr. Sangster: No, sir; we did not.

In like manner witness could not say whether he had included in the cost of present property the items not traced to schedules and so indicated on page 270 of his report. The note states: "The original installation of these regulators cannot be traced to the schedules. They probably replaced the regulators installed under schedule 80, which were returned."

There is an additional note on page 272 which states: "This substation also contains motor and generator for booster set, installed in 1899."

We cannot say definitely that this motor and generator is included in our schedule of purchases.

Mr. Ham: Is it possible or proba le that it is included in your statement of purchases? "Probable," I think, is the word you used last, "that it was not probable."

Mr. Sangster: I say it is probable. Let us say that it may be included in our schedule of costs, but we cannot say definitely.

Mr. Ham: From the examination that you now make of your

report, would you say that it is probably included or probably not included?

Mr. Sangster: I couldn't say. There is no difference between this and the former items. We cannot state definitely that it is in our schedules of the cost. The same is true of items not traced to schedules and so indicated on page 280 of his report.

Mr. Ham: What item on that page is referred to with a single asterisk?

Mr. Sangster: There seems to be a typographical omission there. I will look it up.

Nor can he say definitely as to whether or not he has included in the cost of property the items not traced to schedules and so indicated on page 274 of his report. And that he made no examination to ascertain whether or not he charged to such account. The same is true as to the items indicated on page 286 of his report; that 9 D. C. feeder panels in this substation do not bear any
389 numbers, and for that reason we failed to identify them in the schedule of cost, so that I could not say definitely in regard to those items either, but they might be a part of the item of substation apparatus.

Mr. Bowen: Have you included in the cost of present property the items not traced to schedules and so indicated on page 292 of your report?

Mr. Sangster: We cannot say definitely that they are included in the schedules of cost and the same is true of the item noted on pages 294 and 296 or page 300. Likewise all those indicated on page 306. It is possible that the panels mentioned in this schedule might or might not have been originally installed in a power station for a different purpose. It is also possible that the cost of those items is included in the amount eliminated from the cost of power stations.

Mr. Ham: So where you have eliminated practically the entire cost of the Georgetown power station known as station A, and where you have eliminated the entire cost of what we call the old plant of the United States Electric Lighting Company, the amount so eliminated may include many of the items to which we have been referring in the schedules?

Mr. Sangster: There is a possibility of that, yes, sir.

Mr. Bowen: Have you included in the cost of present property the items not traced to schedules and so indicated on page 312 of your report?

Mr. Sangster: We cannot say definitely.

He made the same response to similar questions and noted on pages 314, 316 and 322 of his report. 43 panels in all.

Mr. Barbour: May I ask you, Mr. Sangster if you made no inventory of the properties of the Potomac Electric Power Company, how did you ascertain the existence of these properties which you have not carried into the property account?

Mr. Sangster: We had the inventory of the power station apparatus, which has already been referred to.

Mr. Barbour: You get them from that?

Mr. Sangster: Yes.

Mr. Barbour: So you got the information at least by the cooperation of the Company delivering you that inventory?

Mr. Sangster: Yes.

Mr. Barbour: And you made no request for any further information in regard to it?

Mr. Sangster: We made no further request.

Commissioner Brownlow: I am pretty sure that we have reasonable ground for believing that we will have the cooperation of the Company in clearing up all these matters before the Commission.

Mr. Barbour: As to everything that we can, but Mr. Commissioner, we cannot perform impossibilities.

Mr. Ham: You understand it is the position of the Company that Mr. Sangster engaged in an impossible task. We cannot clear up these things. We claim that no one can clear them up. We simply claim that the whole theory is an impossible one.

Mr. Syme: That all valuations are impossible?

390 Mr. Ham: No, not a valuation. As we stated in the outset, if you want to ascertain the cost of existing property, limiting the inquiry to what the Commission says it is interested in, the first essential is to have an inventory of existing property. Now, you did not do it that way; Mr. Sangster did not do it that way; he worked backwards. In some cases where there was not any he tried to build up through his property accounts a statement leading to how much property now exists, which I say, in my judgment, is an impossible task.

Commissioner Brownlow: He was consistent in the use of the inventory, but he did not include in his report such items that he discovered in the inventory which were not referred to in the accounts.

Mr. Barbour: Mr. Sangster, Mr. Bowen has been asking you about a number of these items which do not appear in the property account as stated by you. There is no doubt in your mind that all this property not traced to property account as noted in these different accounts, is really in existence at the present time, is there?

Mr. Sangster: I have accepted the substation inventory as a correct statement, after consultations with employes of the engineering bureau who made a physical examination.

Mr. Sangster: The earlier classifications for electric railways provided that bond discounts should be included in the capital account.

391 *Line* 11.

Mr. Ham: Mr. Sangster, is there anything more in regard to the item of $1,977,150.63 than the fact that that represents the difference between the book value of the United States Electric Lighting Company before consolidation and the amount paid for said Company as a going concern by the Potomac Company, measured in capital stock and the assumption of debts?

Mr. Sangster: There is nothing more.

392 *Line 7, Section IV.*

Mr. Ham: Mr. Sangster, I am not sure that your testimony clearly states whether you think that the item of $32,076.67, mentioned on page 13 of your report as Moving or Changing Apparatus, should or should not be included in Construction and Equipment. Will you please state whether it should or should not?

Mr. Sangster: I think it is to be included so far as it represents increased expenditures, or expenditures increasing the cost of the apparatus which was moved. In other words if in addition to moving the apparatus the Company has made expenditures which have increased the cost of the apparatus itself, then that additional expenditure should be included in the amount of money expended.

He stated this item separately from the other items of moving or changing apparatus because "We think that this item does include additional expenditures, probably in great part but we have no definite information.

393 *Line 7, Section XIV.*

Mr. Ham: How much did you eliminate from the Arc and Incandescent Lamp account on account of property now out of existence?

Mr. Sangster: That was $7,307.24.

Mr. Ham: How much did you transfer from Plant account of the United States to account known as Street and Park Lighting?

Mr. Sangster: $19,200.58.

Mr. Ham: How much did you eliminate from that Plant Account?

Mr. Sangster: The same amount.

Mr. Ham: In other words, having an inventory of the lamps themselves enabled you to come to the conclusion that this whole $47,000 should not be written off so far as it applied to lamps?

Mr. Sangster: Yes.

Mr. Ham: But having no inventory of the street and park lighting system you wrote off the entire amount which was transferred from the Plant Account of the United States Electric Lighting Company? The only way that you can intelligently get at the conclusion as to whether $76,002.08 represents the cost of property now owned by the Company included in this classification, is by having an inventory here; is not that true?

Mr. Sangster: Yes, sir.

Mr. Ham: In other words when you get down to the fact, the only way to get at any of the property listed in your report is by having an inventory of it?

Mr. Sangster: Of these smaller pieces of property, yes.

Mr. Ham: You do not call substation apparatus small property, do you?

Mr. Sangster: No, but there we have a case of numerous changes in the plant, which makes it convenient, and in fact very necessary, to have an inventory.

Mr. Ham: Does not your report show that over 50 per cent of the property of the Company is in small items?

Mr. Sangster: You mean in power plants?

Mr. Ham: No; I am giving you the benefit of the doubt. Putting in all the power plants, land and buildings as large items, is not more than 50 per cent of the property of the Company in what might be called small items? Are not those small items each by itself? They are not the class of items that can now be identified from the original purchase. A piece of power station apparatus, as you have correctly stated, has a nameplate on it; it can be identified; buildings or a piece of land can be identified, but items that go into conduit construction, cable construction, street and park lighting, and those other accounts mentioned on page 13, are things that once in cannot be afterwards identified.

Mr. Sangster: That is correct.

Mr. Ham: As to those is it not necessary that you have an inventory to ascertain the correctness of your property now owned?

394 Mr. Sangster: An inventory would certainly be a great convenience, but on the other hand we can use caution to see that nothing is eliminated from the account which should be there. You could not ascertain the number of lamps without an inventory or number or value of meters without an inventory, the number of horses, line transformers and devices without an inventory.

Mr. Syme: The books show the amount expended for all of these things, do they not?

Mr. Sangster: Oh, yes.

Mr. Ham: I will qualify that by the question, where would you have to look for these expenditures, limiting it to overhead lines and poles?

Mr. Sangster: In overhead lines and poles we would limit it to Plant Account.

Mr. Ham: Would you not entirely depend upon what had been the policy of the Company in charging expenditures for renewals and betterments to operating expenses?

Mr. Sangster: To be sure it would depend upon that.

Mr. Ham: So that in order to attach any value to what you ascertained through the Plant Account you would have to ascertain what had been done through the Maintenance and Operating Expense Accounts?

Mr. Sangster: We should have to know generally what the policy of the Company had been in regard to renewals and replacements.

Mr. Ham: Are you prepared now to furnish the balance of the figures transferred from operating expenses to construction account?

Mr. Sangster: I can only give you that information in a general way. I do not know what accounts these expenses have been transferred from. I can say that the $14,893.91 includes one Columbia runabout, $600; one Brush runabout, $625; two Franklins, $3,660.66; motorcycles, $2,120; delivery auto, $1,884.05; horses, $4,265; wagons, $1,739.20. Total, $14,893.91.

Mr. Ham: Then the net result of the transfers from Operating Expenses to Plant Account is that they consist of $27,393.68, which

was not in Operating Expenses at all, but in the account known as Reconstruction, which was charged direct against Income, and the cost of some automobiles and motorcycles?

Mr. Sangster: Yes.

Mr. Ham: You did not find a single thing in the vouchers of these companies since 1882 charged to Operating Expenses or Maintenance that in your judgment could have been charged to Plant Account?

Mr. Sangster: In all other cases we accepted the Plant Account of the Company as being correct. We made some examination of operating vouchers, but not a systematic search; nothing that you would consider you could place any reliance on. As to how complete it was I am unable to say.

Mr. Ham: These same stores that were used for Plant Account, was there any portion of the cost of the purchasing department added to those stores that was afterwards used in Plant Account?

Mr. Sangster: I think all the departmental expense items of that nature were charged to operating expenses. We found nothing to indicate that any portion of the cost of operating and maintaining automobiles was included in the cost of Plant.

395 Mr. Ham: Did you find out about the coal hoist, Mr. Sangster?

Mr. Sangster: I think that was the same coal hoist. So far as I can see we have erroneously eliminated the original cost of the coal hoist. Perhaps a correct statement of the situation would be to restore the original cost and remove the cost of reconstruction as shown in different sections.

The hoist that I refer to is shown on page 84½, $2,831.28. But the motor was since sold for $75 and an additional $75 deducted for depreciation, leaving $2,681.28. It appears that the coal hoist is eliminated here in error, so far as I can see. I see nothing to indicate to the contrary, after some study. On the other hand the Company had included in its Plant Account a sum of $352.84 for reconstructing the hoist, destroyed by fire. This is shown in my report, page 49.

We might put the matter right by restoring the $2,681.28 and eliminating $352.84, unless any part of the latter has actually increased the cost of the hoist.

Mr. Ham: But in regard to the latter, is there not something to indicate that the accounting officers of the Company thought that it did increase the value?

Mr. Sangster: Let me read the item, in case of any misunderstanding:

"Reconstructing coal hoist, destroyed by fire, $1,001.69, less $296 reserved for insurance. $705.69 is the net cost of reconstructing, one-half of which is charged to construction."

Mr. Ham: And the balance?

Mr. Sangster: The balance to some maintenance accounts, I presume.

Mr. Ham: So unless you intend to substitute your judgment for that of the officers, you would say it is a proper charge to construction as it stands?

Mr. Sangster: Yes.

Mr. Ham: Mr. Sangster, on page 222 of your report you state the amount of the cost of existing office furniture and fixtures. This statement of office furniture and fixtures now on hand shows a total of $12,298.74. This does not show that you include in the statement of furniture and fixtures now on hand any expenditures for the ten years from 1903 to 1911 inclusive.

Mr. Sangster: That is correct. There were no expenditures charged to plant.

Mr. Ham: Would the fact that there was no expenditure charged to plant account during those ten years indicate to your mind that during that period the company had bought no office furniture and fixtures?

Mr. Sangster: There may have been some further purchases, but they would be buried in operating expenses, and it would be difficult to locate them.

Mr. Ham: Do you maintain that the figure, $12,298.74, represents the cost of the company's existing office fixtures?

Mr. Sangster: If it could be shown that substantial expenditures have been charged to operating expenses, it would be proper to add that.

396 *Line 7, Section* XVI.

The witness then identified a large number of vouchers and after examining them said they should be charged to operating expenses that they have reference to.

Mr. Ham: Do you, therefore, feel that if the company has been charging to operating expenses not only additional furniture and fixtures, but renewal of furniture and fictures, that you are justified in eliminating from the accounts of the company the item of $563.86 mentioned on page 227 of your report?

Mr. Sangster: That is perhaps hardly a correct treatment for that item. In view of these facts, the item should not be eliminated. To make a full and complete statement, of the cost of existing office furniture and fixtures owned by the company it is necessary to examine both items charged to plant account and items charged to operating expenditures.

Mr. Ham: It is already in evidence that the engineering department of the valuation bureau of the Public Utilities Commission ascertained that there is in existence at the present time office furniture and fixtures to the amount of $26,899.85, comparing with the figure stated by you to be $12,298.74. In view of this fact, combined with the fact that the company has charged, during a considerable period of time, expenditures of this nature to operating expenses, do you now think that your figure of $12,298.74 is correctly stated?

Mr. Sangster: I have always thought * * * that the statement of office furniture and fixtures * * * was more or less incomplete, and that in so far as a proper inventory and valuation method, such as has been followed by Mr. Pillsbury, can be shown

to approximate the actual cost, or follow that method largely, it would be more correct to use that figure.

397 *Line* 32.

Mr. Ham: Mr. Sangster, on page 374 of your testimony you stated that you found in the company's general depreciation account a sum which applied to land, and which you transferred to land.

Mr. Sangster: I have treated it along with some depreciation items as a matter of convenience in stating the figures in the report. That is a sale of property of some kind which we transferred to land.

Mr. Ham: It would have been proper for the company to take this profit on the sale of its land to its income or profit and loss account as a credit, would it not?

Mr. Sangster: We are referring to an item of $87,293.75. If we get down to the particular item probably I can explain it better. You will find, on page 543 of the report, that the company purchased certain lots or property at I street between 14th and 15th streets, northwest, costing $58,805.08; that they sold it for $87,293.75. This is the item which we referred to which I transferred from the general account. The profit there, though the company credited the cost of plant, I reversed and added it back to plant, the difference being $28,488.67. The adjustment you will see on page 36.

Mr. Ham: The company could with propriety have taken that difference of $28,488.67 to the credit of its profit and loss account?

Mr. Sangster: Yes, sir; but it did not, so I made the adjustment in the plant account, and made a corresponding entry which would have that effect. While I did not, of course, suggest any profit and loss account, I adjusted the plant account. We have necessarily here a one-sided adjustment.

398 *Line* 36.

Mr. Ham: Does the cost of electric meters as stated in your figure of construction and equipment include the cost of installation?

Mr. Sangster: No, it does not.

Mr. Ham: Do you know how that was treated in the company's accounts?

Mr. Sangster: The cost of installation of meters, as well as removing and re-setting meters, is charged to operating expenses. On looking up the working papers I find that we could not get sufficient data in connection with cost of installation to determine approximately what the average per meter would be. We have not included it in the section dealing with meters.

Mr. Ham: If the cost of setting additional meters is about $1.25 each, that would mean that our capital account should be increased by the number of meters multiplied by $1.25?

Mr. Sangster: On that assumption, yes, sir.

399 *Lines 29 and 31.*

Mr. Bowen: What overheads had you in mind when you testified that certain overheads should be added to your report?

Mr. Sangster: I had in mind some such item as the Commission might find in its own judgment was a proper charge, if any, to add to cost of physical property, for overhead expenses not included or fully represented in this report.

Mr. Bowen: Have you undertaken anywhere in your report to enumerate what those overheads should be, or what they should consist of?

Mr. Sangster: No, sir. There are some items which could come under that category, such as engineering and superintendence, interest and executive salaries, which may or may not be fully a proper allowance for overhead expenses or overhead charges. That is a matter which I have left entirely to Doctor Edward W. Bemis or the Commission.

Mr. Bowen: On page 312 of your testimony I understand that you say, "The company has not uniformly charged the plant and equipment account with overhead expenses throughout the whole period, and in order to assist the Commission in its treatment of the item of overhead charges I have decided that we had better show these separately, so that the Commission may make what allowances it determines ought to be made to the actual amount expended, before any item of interest or engineering or executive salaries is included."

If we understand you correctly, you say it would be proper to make some reasonable allowance for overhead charges over and above the figure of $7,649,576.81, which you find to be the amount expended in construction and equipment of property now in existence, exclusive of any overhead charges. Are we right about this?

Mr. Sangster: That is quite correct.

Mr. Bowen: Do you include under the item of overhead charges such item of overhead cost as store expenses?

Mr. Sangster: Yes, sir. I do not think there is any store expense in the amount of money shown here.

Mr. Bowen: Do you include under the item "overhead charges" such item as "overhead cost, salary and expenses of purchasing agent's office, clerical labor, cost of operating and maintaining automobiles, etc."

Mr. Sangster: These are not included in the overhead charges shown on this report, page 14.

Commissioner Brownlow: Do you include them in your conception as proper overhead charges?

Mr. Sangster: I think it would be quite proper to allocate a portion of the purchasing office expenses and those elements of expense which were mentioned in considering overhead charges. * * * There are various views as to how that should be determined, whether by percentages or otherwise, and as to the basis to be adopted, but it is generally conceded, in uptodate accounting, that

the plant account shall receive some allocation of such expenses. They are not included at all in this report.

400 Commissioner Brownlow: I just wanted to clear up the phraseology.

Mr. Sangster: That is my conception, and that is the fact.

The statement on page 312 of this witness' testimony "On that basis, the cost of plant and equipment, including these general overhead charges, is $7,649,576.81," is an error.

Mr. Ham: In other words, to shorten it, might I perhaps express it this way, that in addition to the figures which you have shown as cost of construction and equipment there should be added two classes of overhead expenses, one class being that which is sometimes known as the "contractor's profit," including such expenses as store expenses, purchasing agent's office, general office expenses and telephone and contingent expenses of that kind, and also the kind of overhead expenses which are mentioned in your report as being engineering and superintendence, interest, taxes and things of that character.

Mr. Sangster: That would be quite correct, so long as the Commission understands that in so far as the company has paid for property which has been installed or contracted by a contractor the contractor's profit is necessarily included in the price paid.

Mr. Ham: That is satisfactory.

Commissioner Brownlow: I think that is perfectly clear.

The witness has not undertaken to show or include in the cost of property such portion of operating and income account such as salary and expenses in connection with construction work and properly chargeable to capital, which the company did not allocate to construction account, and states that the electric lighting and power plant has been expanding since and that construction work has had to continue in operation continuously in piecemeal fashion.

Mr. Sangster: That is correct, and I admit it. The Potomac Electric Power Company maintains a construction department which attends to both construction and ordinary annual maintenance work.

Mr. Bowen: If instead of going outside and hiring a contractor, the company has maintained an organization of its own, in addition to operating, competent to do construction work, and which has actually performed it, should not such part of that organization as has been required for construction work and in the performance of same be properly chargeable to capital?

Mr. Sangster: So far as it has been engaged in construction work. * * * Of course any allowance that might be made would be more or less on an arbitrary basis. In other words, you would have to take the total expense of the department and determine in some arbitrary or approximate way how much should be allocated to plant. You could only do that by assuming some larger basis of expenditure and applying a percentage on that.

The witness has not undertaken to analyze the operating accounts of the company to ascertain what proportion of expenses strictly chargeable to construction the company has not allocated to construction covered by the following I. C. C. accounts:

401 "E-120—power plant wages, superintendence.
"E-134—power plant tools and implements and maintenance.
"E-141—substation labor-superintendence.
"E-170—distribution-superintendent.
"E-171—distribution office expenses.
"E-173—setting and removing meters and transformers.
"E-174—electric meter operation.
"E-184—miscellaneous distribution labors.
"E-201—miscellaneous distribution equipment-maintenance.
"E-210—commercial administration.
"E-220—salaries and expenses of general officers.
"E-185—miscellaneous distribution supplies.
"E-212—other commercial expenses.
"E-221—salaries and expenses of general office clerks.
"E-222—general office supplies and expenses.
"E-223—general law expenses.
"E-224—miscellaneous general expenses.
"E-225—insurance.
"E-228—general amortization.
"E-229—injuries to persons and property.
"E-230—stationery and printing.
"E-231—store expenses.
"E-232—stable expenses.
"E-233—miscellaneous adjustmenets—balance—inventory adjustments.
"E-240—general structures—maintenance."

Mr. Sangster: No, I have not. There may be one little exception in the case of E-134, power plant tools and implements, maintenance, where the company may have itself at different times charged some miscellaneous tools to be used in construction work, but my recollection is that the company has not followed that as a uniform principle.

In his second item of $7,869,655.54 he has included interest to the extent of $399.45 and no taxes.

402 *Line* 24.

Mr. Ham: Do you think the company bought the Great Falls power site with an idea of not using it for future operations?

Mr. Sangster: No, sir, I rather think that the company has every hope that it will be able to use it some day for future operations.

Mr. Ham: And it was properly entered in investment account, according to the classification of the Interstate Commerce Commission?

Mr. Sangster: Yes, sir. The company bought the Great Falls Power site in May, 1912, after the Interstate Commerce Commission classification went into effect.

403 *Lines 38 and 39.*

Mr. Sangster, referring to working capital, says:

I have divided the assets and liabilities into two divisions, the first division showing approximately what items should be included as fixed. On page 17, and it is supported by Section 17, Exhibit H, page 247.

On page 247 you will find for each of the period- ending December 31, from 1910 to 1913, and as of date July 1, 1914, the investment according to the Potomac Electric Power Company's books, in plant and equipment, in construction in process, in property abandoned, in investments, and in unamortized debt, discount and expense. Against this I have placed cost of capital stock, funded debt, and depreciation reserve, as what might be regarded as invested in this fixed property. This shows an excess of investment of $210,000, which we might regard as invested in current and working assets over current liabilities. Our current and working assets include materials and supplies, bills receivable, accounts receivable, cash on deposit and some prepaid and deferred expenses.

Current and accrued liabilities include bills payable, accounts payable, consumers' deposits, accrued liabilities, damage, etc., reserve, surplus and the uninvested portion of sinking fund reserve.

Of course this is more or less arbitrary. It is merely for the purpose of showing finally what are the current assets held by this company either in money lying out in accounts unpaid by consumers or money in stores represented by materials and supplies or funds, more properly speaking, furnished by outside parties. Our net difference is the net amount of cash and funds or property represented by liquid assets, generally, which the company has furnished itself out of its own resources, either from the depreciation reserve or from the moneys reserved out of revenues, for liabilities accruing or any such purpose. I have then attempted to show what this total amount of money furnished by the company itself brings out. I find that on page 17 the current assets may be divided, then, into these two groups, one column showing the amount furnished by creditors and depositors, the other colum- showing the funds provided out of the company's own resources, out of reserved incomes and depreciation reserves, etc.

We have, for instance, in the third column at the foot of page 17, that the company has furnished as of July 1, 1914, as an illustration, $473,514.71 as the total moneys represented by current assets at that time.

This $473,514.71 would then be represented by a portion of the materials and supplies and accounts receivable and moneys in bank, the balance being furnished by creditors and depositors. The consumers' deposits in July, 1914, amounted to $75,522.95.

Mr. Bowen: How much money do you show on July 1, 1914, was in bank?

Mr. Sangster: Cash and deposits, $264,275.89.

Mr. Bowen: How much do you show the company had in stock, and supplies?

Mr. Sangster: $128,893.08.

For a final figure he allows $240,000.

404 *Lines* 30 *and* 31.

Working Capital is discussed from pages 739 to 1780.

405 October 26, 1916.

Redirect examination:

Line 11.

Mr. Syme: Mr. Sangster, I asked you to make for us a statement from the books of the company showing the date and amounts of the issue from time to time of the capital stock of the Potomac Electric Power Company, the consideration paid for it so far as the books show, and also in what instances property, either in money, cash or actual property such as plant and equipment, passed as whole or as part of the consideration. Have you made that statement?

Mr. Sangster: I have prepared the figures from my working sheets, which were prepared from the books of the company. Beginning with the common stock, which, at the date of the valuation on June 30, 1914, amounted to $5,750,000, the first stock issue was June 30, 1896, to the following gentlemen:

O. T. Crosby	$127,300
C. A. Lieb	127,300
F. C. Stevens	100
H. W. Cramp	100
C. P. Williams	100
H. T. Purdie	100
Total	$255,000

That is the $255,000 paid for the plant and franchise of the Potomac Electric Power Company in 1896.

Mr. Syme: Exclusive of the franchise and other intangible rights that may have passed by that transaction, how much physical property passed as to value?

Mr. Sangster: On page 6 of my report I have divided this $255,000 into $46,810.50, which was shown by the books to apply to cable and Eckington dynamo, and various other properties which were transferred from the cost of property account to specific plant accounts, the balance of $208,189.50 is designated "Franchise," etc. on page 15, there being no further information as to what this $208,189.50 really represents.

The next issue is on August 20, 1897, as follows:

H. D. Mirick	$50,000
C. A. Lieb	12,500
O. T. Crosby	12,500
Total	$75,000

Issued for cash, or partly for cash and partly for services rendered such as special services in connection with the installation of the plant.

Mr. Syme: How much was for cash and how much for services, can you figure that?

Mr. Sangster: We cannot state that.

Mr. Syme: The books do not show it?

Mr. Sangster: The books may show it, but I mean to say that at the same time these parties subscribed to the stock they may have received certain payments for special services; but in any case these services are figured in the total plant account in this report, so I do not think it would be material from your point of view.

The next issue was on August 24, 1897, as follows:

406

C. A. Lieb	$5,800
O. T. Crosby	5,800
F. C. Stevens	50,800

A total of $62,200 issued for cash.

September 1, 1897, National Conduit Manufacturing Company issued in part payment of bill for $11,203.50, $1,700.

September 15, 1897, H. B. Camp & Company, issued in part payment of notes and interest amounting to $2,370.51, $1,000.

The same date, United States Mortgage & Trust Company, issued in payment of commission on sale of $75,000 bonds, $3,500. That we may put separately under the heading of commission.

June 30, 1898, O. T. Crosby, C. A. Leib and H. D. Mirick, in part payment of services for obtaining loan from United States Mortgage & Trust Company, and in obtaining contract for power with E. & S. H. Railway Company, $300,000. That I put under "Other considerations," as not directly applying to property acquired or cash received.

December 29, 1898, L. E. Sinclair, special services during installation of plan, $400.

J. B. Lackey, special services during installation of plant, $300.

W. S. Terry, special services during installation of plant, $300.

A total of $1,000, which I have classified as issues for cash.

April 29, 1899, G. H. Harries, stock subscribed by him against his account, $3,000. I put that in the cash column.

H. D. Mirick, services rendered over two and one-half years. This

claim was allowed in view of the fact that his services were considered in full of the amount $47,500.

June 1, 1899, H. D. Mirick, balance of services, $100.

That makes a total of $47,600 issued for cash.

September 30, 1902, United States Electric Lighting Company in Payment of—I have no notation as to what this stock was issued for; at least, I have not the entry according to the books. This is $3,250,000 issued to the United States Electric Lighting Company in 1902. I have divided that as shown on page 7 of the report, $1,272,849.37 being the amount of the plant of the United States Electric Lighting Company, according to its books and $1,977,150.63 the difference between the last-mentioned amount and the amount of stock issued. This $1,977,150.63 I have put in a column under "Other considerations."

November 26, 1902, Washington Railway & Electric Company, $425,000 issued for cash.

Mr. Barbour: How much was that?

Mr. Sangster: $425,000, November 26, 1902.

November 26, 1902, Washington Railway & Electric Company, part payment of bonds, $325,000, as undernoted:

Bonds retired $650,000

Interest accrued, $80,888.85, less paid in cash, $425,000, leaving $305,888.85. Stock, $325,000.00, less discount charged to the cost of plant, $19,111.15, making the net amount retired, $305,888.85.

This $325,000 of stock I have accordingly divided as follows:

$225,000 in payment of securities retired; $19,111.15 for discounts or commissions; and $80,888.85 for interest.

May 27, 1912, Washington Railway & Electric Company, 10,000 shares of capital stock issued and delivered in accordance with resolution adopted by Board of Directors at meeting held May 16, 1912, and as called for by the contract with the Washington Railway & Electric Company for the purchase by this company of an undivided two-thirds interest in the Great Falls water power site,
407 $1,000,000. That I have put down in the column "Other considerations," $1,000,000. That is the total of the common stock, $5,750,000.

The preferred stock of $250,000 was issued June 30, 1898 to O. T. Crosby, C. A. Lieb and H. D. Mirick in part payment of services for obtaining loan from the United States Mortgage & Trust Company, and in obtaining contract for power with the E. & S. H. Railway Company, $250,000. This $250,000 of preferred stock and the $300,000 of common stock, issued on the same date already referred to, makes $550,000 referred to on page 15 of the accounting report, under "Organization, etc., expenses" of Potomac Electric Power Company 1897 to 1899, firs- item, making the totals as I have distributed them, and we have an aggregate of $6,000,000 of stock, of which $1,511,159.87 was issued for cash or directly for property acquired; $650,000 was issued for the purpose of retiring securities outstanding; $3,500 issued for commissions on bonds; $19,111.15 discounts; $80,888.85 for interest; and $3,735,340.13 for other considerations.

I will repeat there that the "Other considerations" include $208,189.50, the balance of the $255,000 issued to the Potomac Electric Power Company, as stated on page 6, the $300,000 issued to Messrs. Crosby, Lieb and Mirick for special services in obtaining loans, etc., and $1,977,150.63 excess of the stock issued to the United States Electric Lighting Company over the book value of its plant and equipment, the $1,000,000 issued in payment of the Great Falls water power site and the $250,000 preferred stock issued to Messrs. Crosby, Lieb and Mirick in payment of special services in obtaining loan, etc.

This is stock only. We have the bonds.

"A."

"Washington, D. C., June 30, 1896.

"Meeting of Directors of the Potomac Light & Power Company.

"Present, O. T. Crosby, Charles A. Lieb and F. C. Stevens.

"O. T. Crosby in the chair.

"The Directors, by resolution duly carried, authorized the President of the Company to offer its entire assets to the Potomac Electric Power Company of the District of Columbia for the sum of $255,000, payable as follows: $50,000 in cash on closing the transaction; the balance in installments of $50,000, $50,000 and $55,000 every ten days thereafter, deferred payments to be witnessed by notes of the Potomac Electric Power Company given to the Potomac Light & Power Company, the said notes to run without interest, with the privilege on the part of the Potomac Electric Power Company to complete payment within ten days.

"On motion of Mr. Lieb, duly carried, it was noted that proceeds of sale should be divided prorata among the stockholders of record, and the Treasurer was instructed to make such distribution. The President of the Company was given authority to appear before a justice of the peace, a notary public or other proper officer authorized by law to take acknowledgments of deeds, and execute such deeds or instruments as might be necessary to make the transfer of the property of the Potomac Light & Power Company.

"On motion of Mr. Stevens the meeting adjourned.

"JAMES B. LACKEY,
"Acting Secretary."

"B."

"Washington, D. C., June 30, 1896.

Meeting of the trustees of Potomac Electric Power Company.

"Present, O. T. Crosby, Charles A. Lieb, Frederick C. Stevens and Charles P. Williams.

"Mr. Charles A. Lieb, Vice President, in chair.

"The Chair stated to the meeting that he had received a proposition from the Potomac Light & Power Company to the effect that they would turn over to the Potomac Electric Power Company all their

assets for the sum of $255,000, to be paid as follows: $50,000
408 in cash on closing the transaction, the balance in installments of $50,000, $50,000, $50,000 and $55,000 every ten days thereafter; deferred payments to be witnessed by the notes of the Potomac Electric Power Company, said notes to run without interest, with the privilege on the part of said Potomac Electric Power Company to complete payment within ten days.

"The Vice-President thereupon reported the following subscriptions, to be paid for in cash at par:

O. T. Crosby	1,273 shares
C. A. Lieb	1,273
F. C. Stevens	1
H. W. Cramp	1
C. P. Williams	1
H. T. Purdie	1

Mr. Stevens then moved that the proposition of the Potomac Light & Power Company be accepted and the Vice-President be authorized to do so by paying $50,000 in cash and giving the Company's notes as called for by the terms of the proposition submitted by the said Potomac Light & Power Company.

'The resignation of Mr. D. M. Anderson was accepted.

"On motion of Mr. Williams by-laws as reported by the committee appointed at the meeting of June 1, 1897, were adopted without objection.

"CHARLES P. WILLIAMS,
"Secretary."

"C."

"Washington, D. C., October 1, 1896.

"Sundries.

To capital stock	$255,000
O. T. Crosby, 1,273 shares	127,300
C. A. Lieb, 1,273 shares	127,300
Frederick C. Stevens, 1 share	100
Henry W. Cramp, 1 share	100
Charles P. Williams, 1 share	100
Henry T. Purdie, 1 share	100

"Shares of Capital Stock Subscribed to and Paid for June 30, 1896, and Kept by Memorandum.

Treasury Stock	$245,000	
"To capital stock		$245,000
Capital stock issued, $500,000	255,000	
"Subscribed for as above	245,000	to treasury
Original plant and franchise	$255,000	
To Potomac Light & Power Company		$255,000

"NOTE.—Purchase of original plant and franchise for cash and notes as per minutes of June 30, 1896, transaction having been kept by memorandum and not appearing on books of this company previous to this date.

Potomac Light & Power Company.....	$205,000	
To bills payable.....		$205,000

409 "NOTE.—Four notes dated June 30, 1896, for ten, twenty, thirty and forty days, first three for $50,000 each, and last for $55,000 in payment of above account having been kept on memorandum."

Witness also filed a statement of the various bonds issued by the Potomac Electric Power Company from time to time as follows:

June 23, 1904, United States Mortgage & Trust Company, $1,500,000, the proceeds being $1,410,000, discount, $75,000, and commission, $15,000.

March 16, 1905, United States Mortgage & Trust Company, $200,000, proceeds $188,000, discount $10,000, and commission $2,000.

Consolidated mortgage 5 per cent bonds were issued as follows:

June 30, 1906 to April 1, 1907, United States Mortgage & Trust Company, $1,300,000, proceeds, $1,222,000, discount $65,000 and commission $13,000.

March 11, 1908, American Security & Trust Company, $100,000, proceeds, $87,500, discount $12,500.

March 18, 1908, National City Bank of New York $25,000, proceeds $21,875 and discount $3,125.

March 19, 1908, Commercial National Bank, $1,000, proceeds $875 and discount $125.

March 23, 1908, National Bank of Washington $100,000, proceeds $87,500 and discount $12,500.

March 30, 1908, Riggs National Bank $10,000, proceeds $8,750 and discount $1,250.

March 31, 1908, W. B. Hibbs & Company $20,000, proceeds $17,500 and discount $3,125.

April 2, 1908, Commercial National Bank $1,000, proceeds $875 and discount $125.

April 3, 1908, National City Bank of New York $10,000, proceeeds $8,750 and discount $1,250.

April 3, 1908, Riggs National Bank $15,000, proceeds $13,125 and discount $1,875.

April 6, 1908, National City Bank of New York $10,000, proceeds $8,750 and discount $1,250.

April 7, 1908, National Savings & Trust Company $25,000, proceeds $21,875 and discount $3,125.

April 7, 1908, Riggs National Bank $75,000, proceeds $65,625 and discount $9,375.

April 7, 1908, National Bank of Washington $100,000, proceeds $87,500 and discount $12,500.

April 8, 1908, Commercial National Bank $10,000, proceeds $8,750 and discount $1,250.

April 9th and 14th, 1908, National Savings & Trust Company $40,000, net proceeds $35,000 and discount $5,000.

April 18 and 21, 1908, National Metropolitan Bank $50,000, proceeds $43,750 and discount $6,250.

410 May 7, 1908, Commercial National Bank, $38,000, proceeds $33,250 and discount $4,750.

May 8, 1908, National City Bank of New York $30,000, proceeds $26,250 and discount $3,750.

May 8, 1908, National Savings & Trust Company $65,000, proceeds $56,875 and discount $8,125.

July 2, 1908, to April 1, 1909, Brown Brothers $750,000, proceeds $701,250 and discount $48,750.

April 1, 1909, National Bank of Washington $100,000, proceeds $100,000.

April 1, 1909, American Security & Trust Company $100,000, proceeds $100,000.

April 1, 1909, National Savings & Trust Company $75,000, proceeds $75,000.

April 1, 1909, Riggs National Bank $100,000, proceeds $100,000.

April 1, 1909, W. B. Hibbs & Company $25,000, proceeds $25,000.

July 2, 1909, to January 3, 1910, Commercial Trust Company of New Jersey $81,000, proceeds $81,000.

March 9, 1910, Brown Brothers & Company $100,000, proceeds $100,000.

March 9, 1910, National Bank of Washington $142,000, proceeds $142,000.

March 9, 1910, American Security & Trust Company $100,000, proceeds $100,000.

March 9, 1910, Riggs National Bank $100,000, proceeds $100,000.

March 9, 1910, National Savings & Trust Company $75,000, proceeds $75,000.

March 9th and 15th, 1910, W. B. Hibbs & Company $75,000, proceeds $75,000.

July 1, 1910, to January, 1911, Commercial Trust Company of New Jersey, Trustee, $68,000, proceeds $68,000.

March 15, 1911, Brown Brothers $90,000, proceeds $89,100, commission $900.

March 15, 1911, National Bank of Washington $90,000, proceeds $89,100, commission $900.

March 15, 1911, Riggs National Bank $90,000, proceeds $89,100, commission $900.

March 15, 1911, W. B. Hibbs & Company $30,000, proceeds $29,700, commission $300.

July 1, 1911, Commercial Trust Company of New Jersey, Trustee, $4,000, proceeds $4,000.

March 1, 1912, Riggs National Bank $100,000, proceeds $100,000.

March 1, 1912, American Security & Trust Company $50,000, proceeds $50,000.

March 1, 1912, W. B. Hibbs & Company $50,000, proceeds $50,000.

March 1, 1912, National Bank of Washington $50,000, proceeds $50,000.

July 10, 1912, American Security & Trust Company, Trustee, $6,000, proceeds $6,000.

411 September 25, 1912, Riggs National Bank $50,000, proceeds $50,000.

September 25, 1912, W. B. Hibbs & Company $25,000, proceeds $25,000.

September 25, 1912, National Bank of Washington $25,000, proceeds $25,000.

September 30, 1912, American Security & Trust Company $25,000, proceeds $25,000.

February 26, 1913, Riggs National Bank $50,000, proceeds $50,000.

February 26, 1913, W. B. Hibbs & Company $25,000, proceeds $25,000.

February 26, 1913, National Bank of Washington $25,000, proceeds $25,000.

November 24, 1913, Washington Railway & Electric Company $200,000, proceeds $200,000.

January 2, 1914, American Security & Trust Company, Trustee, $100,000, proceeds $100,000.

June 11, 1914, Washington Railway & Electric Company, $13,000, proceeds $12,870, commission $130.

That makes a total of $5,039,000 of bonds issued, the proceeds of which amounted to $4,815,370; the discount amounted to $207,500; and the commission to $18,130.

There were bonds repurchased to a total amount of $10,000, the net price paid being $10,006.25, of which $25 represented commission, and a credit of $18.75 representing discount.

This gives us a net total for all consolidated mortgage bonds of $5,029,000, the net profits being $4,805,363.75, the discount $207,481.25 and commission $16,155.

Mr. Syme: I want to insert in the record the last part of the answer of the Potomac Electric Power Company to the inquiry of the Commission as to its outstanding bonds, which are as follows, and I am reading from page 146 of the report to the Public Utilities Commission for the District of Columbia for the year 1913:

"First Mortgage Bonds.

"Proceeds of sale of $1,700,000 bonds, amounting to $1,598,000, used for the general purposes of the company, as follows:

"Paid to retire $280,000 first-mortgage 4½ per cent bonds	$280,000
"Paid to retire floating indebtedness	805,000
"For extensions, ad-itions, betterments and improvements	513,000
"Total	1,598,000

"Consolidated Mortgage Bonds.

"For redemption of improvements debenture bonds and certificates of indebtedness of the United States Electric Lighting Co. of a par value of $650,000.....	650,000
"For extensions, additions, betterments and improvements	3,865,500
"Total	$4,515,500

"Consolidated mortgage bonds in the treasury of the Com-
412 pany, $313,000, held by Commercial Trust Company of New Jersey, trustee of sinking fund, $159,000."

Referring to the sheets from which the witness had testified with regard to stocks and bonds and the issue of capital stock of $255,000 and his distribution thereto into two sums, one for $46,810.50 which he said was paid in cash and physical property, and $208,189.50 "for other considerations."

The witness said he had distributed it in the same manner that he had treated it on page 6 of his report, just to identify it; that the books showed that $255,000 of stock was paid for in cash and that the notes were subsequently paid; that the $255,000 was issued as the consideration for property taken over by the Potomac Electric Power Company. Subsequently to this transaction the books show that $46,810.50 applied to specific items of physical property, and it is this specific item which he had shown in the second column of the statement, the balance being more or less obscure, he put it in "Other considerations"; that the books show that the $255,000 was issued in exchange for cash to the same parties that sold the property. The immediate transaction was cash given for stock in the cash book of the company, and that the issue of $3,255,000 of the United States Electric Lighting Company was issued under a deed transferring the property of the United States Electric Lighting Company to the Potomac Electric Power Company. This was strictly not a cash transaction. It was merely a transaction issuing a certain amount of stock in payment of the price of property taken over by the Company or received by the company.

Mr. Barbour: The books show that it was issued for the property of the United States Electric Lighting Company as a whole. That is what it was issued for, wasn't it?

Mr. Sangster: Yes, sir. * * * It will be understood that the books do not show that distribution at all.

Direct and Cross-examination of Mr. Sangster concluded, October 26, 1916.

413 (Direction examination continued from page 17:)

Mr. PILLSBURY was recalled for further direct examination on July 21, 1916, and continued his testimony under direction of Mr. Syme beginning at page 820 as follows:

Being referred to Section C of his final summary of inventory divisions "Buildings," being I. C. C. Account E305, E308, and E3*k*7 showing the reproduction cost of structures as $740,989; reproduction cost less accrued depreciation as $544,830.55 and the ratio of reproduction cost to the reproduction cost less ac-rued depreciation as $73.53; and asked whether or not in his judgment as an engineer, after the investigation which he had made as detailed in his last examination, the figures as read represent the fair and reasonable reproduction cost less accrued depreciation and the fair ratio, replied

"As to that question and any other similar question which you may ask with regard to any of the individual figures of the final summary, or individual figures making up the final summary, I wish to first make a general statement.

"Our work in inventorying the property of the Potomac Electric Power Company and in compiling the cost with relation thereto, was carried out under the handicap of lack of cooperation with the company as to certain features of property not clearly indicated by a survey in the field, or by the records available to us. There were certain features of cost which are dependent to some extent upon methods of construction, etc. In that connection, I wish to repeat what I have already said in basis and conclusions, that the company was extremely courteous and all of its employes were extremely courteous in dealing with us and in enabling us to have access to whatever records and data were available, and answered our questions as to ownership, etc., but in general, beyond that, for reasons of their own, they preferred not to cooperate.

Under all of the circumstances and within the time available for final review by myself of all features of the work by our staff, the work was compiled and the final result determined according to the best of my knowledge and belief, and according to the highest integrity, I am sure, of the entire staff.

Upon further review of certain features of the work, I find a few minor adjustments which I would like to make, as affecting, to a minor degree, some of the figures. Just for illustration, take the matter of taxes. As to taxes during construction, we consulted the Assessor of the District. We asked the Assessor under what circumstances the District of Columbia would tax these utility properties were they being reproduced. We were informed with respect to the utility. We now find an apparent error on the assumption of the Assessor only to a minor degree * * * with respect to a certain part of the property as to taxes. That adjustment I will wish to make, but I am not prepared at the present moment to make it in exact figures.

There are certain other minor adjustments.

He erroneously assumed under advice from the Assessor's office that the taxes were paid on the overhead and underground construction during construction, but finds that this is not true of the Power Company. This would go into the distribution system. The matter is under discussion at the present time and witness was not

then prepared to state the amount. There are a number of
414 other minor items, largely distributive costs, which will affect some of the totals to a minor degree. I am not prepared to state them now, but will state them during the hearing.

Subject to these minor adjustments, I am prepared to proceed with any examination with regard to these figures.

Mr. Syme: And you wish that reservation and qualification to be considered as made with reference to each question I ask you as to these totals and summaries?

Mr. Pillsbury: I do.

Subject to this qualification the witness then proceeded to state that the figure he had given as to structures on page 32 of his basis and conclusion is fair and reasonable. This is indicated by the letter "C" which indicates the inventory division.

"In volume 1 you find structures under "Final Summaries," and you find structures under "Detail Summaries!" Also structures under "Details." Structures appear several times in volume 1. It first appears at page 3 of part 2 of volume 1. On page 5 of part 2 of volume 1 appears a summary of structures. That summary shows the total of each Interstate Commerce Commission account which we inventoried under the general division "structures." That is on page 5 of part 2 showing Accounts 305, 308 and 317 embrace entire inventory subdivisions of structures, 305 covering General Structures, 308 Power Plant Buildings, 317 Substation Buildings.

On page 6 part 2 volume 1 is a similar summary of another inventory division called "D" or "Power Plant and Substation Equipment" which totals $2,497,334.89 reproduction cost new and is shown to embrace Interstate Commerce Commission accounts as follows:

E309.	Benning Power Plant	$413,982.46
	Emergency Power Plant	195,037.00
	Total	$609,019.46
#310.	Steam prime movers comprising Benning Power Plant	$471,188.00
	Emergency Power Plant	83,853.00
	Total	$555,041.00
E314.	Electric generators subdivided into	
	Benning Power Plant	$178,369.68
	Emergency Power Plant	76,445.00
	Total	$254,814.68
E315.	Assessory Electric Power Equipment divided into	
	Benning Power Plant	$76,551.98
	Emergency Power Plant	8,845.00
	Total	$85,396.98

E316.	Miscellaneous Power Plant Equipment subdivided into	
	Benning Power Plant	$20,415.90
	Emergency Power Plant	5,468.00
	Total	$25,883.90
E318.	Substation Equipment subdivided as follows:	
	Su-station No. 1	$86,137.78
	2	208,324.89
	3	24,444.57
	5	27,143.06
	10	155,357.84
	11	27,165.25
	13	51,164.44
	14	28,844.62
	16	139,482.38
	Tennallytown Substation	3,658.44
	Anacostia Substation	3,361.68
415	Washington Steel & Ordnance Substation	$13,279.96
	Fidelity Storage Substation	4,594.36
	American Express Substation	3,364.05
	Corby Company Substation	18,540.07
	Engraving and Printing Substation	14,700.68
	Street and Park Lighting Equipment:	
	Substation No. 1	8,211.08
	3	567.34
	5	1,264.65
	10	4,695.61
	11	1,794.39
	13	704.67
	16	43,286.29
	Tennallytown Substation	1,537.74
	Anacostia Substation	1,072.88
	Benning Power Plant	956.43
	Total	$967,178.87
	Total plant and substation equipment exclusive of emergency power plant	$2,127,686.89
	Total power plant and substation equipment including emergency power plant	$2,497,334.89

which together shows the Interstate Commerce Commission accounts which total the amount shown on page XXXII of part 1, which you first referred to, under D, power plant and substation equipment and each of the reproduction cost figures which appears on this particular summary is taken from a summary that follows called a detail summary, which also appears in Volume 1, which begins at page 13. Account numbers refer to the Interstate

Commerce Commission classification — refer only to buildings. The word "structures" as to railways included bridges, for instance, but structures applies, in the case of the Potomac Electric Power Company, to buildings. The particular summary on page 12 shows the total cost of each building and is made up as follows:

Account E305.	General Structures subdivided into	
	old office buildings and shops....	$30,996.00
	General office building.....	65,139.00
	Total	$96,135.00
Account E309.	Power plant buildings subdivided into	
	Benning Power Plant.....	$242,553.00
	14th street power house.....	281,976.00
	Total	$524,529.00
Account E317.	Substation building divided into	
	Substation No. 1	$7,752.00
	2	27,318.00
	5	4,863.00
	10	20,311.00
	12	33,138.00
	13	12,305.00
	14	14,638.00
	Total	$120,325.00
	Total of all structures.....	$740,989.00

The inventory was compiled in the general manner which I outlined in my former testimony by that division of our inventory staff which we call the department of structures, under my general directions as to methods of inventory, methods of checking, etc. The costs which are applied were compiled largely by the staff of our department which we call cost analysis department, all under my general direction and supervision.

416 *Structures.*

I. C. C. Accounts 305, 308, 317.

He considered practically all data which was obtained with respect to costs (not all, but nearly all) and went over practically all of the inventories—as to office work, I mean, of course, and not in the field—going over the inventory. That merely means a general examination, of course. It does not mean checking the computations personally, at all, and the results as to the unit costs, the detail costs, unit quantity and total cost are a fair and reasonable valuation in each of these details to the best of his knowledge and belief The figure $30,996 represents the "Old Building and Shops" Account

E305, general structures, which, on page 5, of part 2, Volume 1, appears in total for Account E-305, general structures, as $96,135, as a part of the general total on page 3 under the head of "Structures."

Perhaps it might be well if I simply make a general statement as to how these accounts are set forth:

Immediately following basis and conclusions, which constitutes part 1 of Volume 1, we have part 2, which consists of summary sheets; first, final summaries and second, detail summaries. The final summaries are two. On pages 1 and 2 of part 2, there is the final summary entitled "Final Summary by Interstate Commerce Commission classification", and it simply sets forth in numerical order all of the Interstate Commerce Commission classifications which, under that set of instructions of the Interstate Commerce Commission which I have previously referred to, comprise accounts of electric lighting and power utility within the District. Opposite these separate account numbers we have set forth the name and the amounts where there are any such items. The other final summary appears on page 3 of part 2 and is a summary merely by our inventory divisions, and was inserted merely for the purpose of identifying our different inventory divisions and the account numbers that come under that. There we have "A, Land"; "C, Structures"; "D, Power Plant and Substation Equipment"; "E, Transmission and Distribution Systems"; "G, General Equipment"; and "H, General Costs", which, together with materials and supplies and working capital make up the total as we found it."

These summaries are already inserted page 7.

Immediately following we have another set of summaries, each one constituting a summary of one of our inventory divisions. The first is the summary of land; and since the land in this particular case which we included in our report is all in one account, there is only one item shown. The next summary is summary of structures, to which I have already referred, page 5. That, like all other of these summaries of inventory divisions, shows the total of our respective inventory divisions divided into the Interstate Commerce Commission accounts which comprise that inventory division.

These summaries are already shown.

417 Then we have another set of summaries which we call detail summaries, and they begin following the red tab "detail summaries" in volume 1. I may say that these various summaries were compiled at various times which, for certain reasons, made it rather impracticable at the time to adopt a uniform numbering throughout all the volumes. I mean the section numbering. We begin at 1 at various places. But immediately following the red tab "detail summaries" in volume 1, we have another set of summaries again of each inventory division, but now showing various subdivisions of the inventory division. For instance, the first one, as to land, appears on page 11, and sets forth the reproduction cost as determined upon for each plot of land independently inventoried and independently listed in the inventory of this report. The next one is a summary of structures to which we have already

referred, page 12, and, as already stated ,that shows the total of structures. That total is divided into Interstate Commerce Commission accounts, but each Interstate Commerce Commission account is divided into buildings, so that it shows the detail for each building.

The next summary begins at page 13 and continues for a number of pages and comprises a detail summary of power plant and substation equipment. That detail summary of power plant and substation equipment is divided into Interstate Commerce Commission accounts, 309, 310, 314, 315, 316, and 318 as set out in the final inventory division summaries but showing in detail as each I. C. C. account is made up.

The witness then from page 839 took up each inventory subdivision and stated that subject to the reservations and under the information he obtained as superintendent of the engineering department and as an expert engineer the figures shown in the summaries represent the fair and reasonable valuation of the reproduction cost and the reproduction cost less accrued depreciation of the plant and equipment of the Potomac Electric Power Company in its entirety and of each subdivision.

The inventory was obtained in the same general manner as he has already outlined. For instance, beginning at page 13, we first have account 309, boilers, furnaces and accessories, and first only that part of that account which appears in the Benning Power Plant.

Mr. Syme: Let me ask you a question right there. On page 13 I see you have the reproduction cost of certain boilers. I would like to ask you, as illustrative of your work, how you obtained that cost?

Mr. Pillsbury: The reproduction cost shown here, with respect to any one of these items of boilers, comprises the reproduction cost of the boilers, themselves, freight on the boilers, the delivery of the boilers to the power plant, the erection in the power plant, and various little incidentals in connection therewith. * * * All plant equipment we corresponded with the manufacturers and obtained from their own statements as to reproduction cost usually of the apparatus f. o. b. their works. Those statements were then compared with cost data from various sources, and actual costs from various concerns, as to similar items of apparatus, in order to conclude whether or not the price so stated was a fair price to allow. The amounts allowed for freight, in general, we based upon our charts of freight established for us at our request and in the manner in which we asked it by the Interstate Commerce Commission, merely giving us freight rates on all sorts of commodities which we outlined to them, from many locations which we gave them,
418 to Washington. The costs of hauling, for instance, were calculated and charted by us in conjunction with local concerns in that business, with reference to various unloading points and various classes of material and apparatus to various points of delivery, taking into account, distances, elevation to be encountered, etc. The erection costs were determined by ourselves after consideration of various sorts of information with respect to erection

costs, and so on. But we have not in written form all of the information which entered into or influenced our final judgment in these matters though we have a great deal of information.

"Whatever information was compiled here as a part of the Commission work is in the files of the Commission; whatever was compiled in writing as part of the Commission work is in the files of the Commisison. There is some other data and informa/ion which enter into the final judgment which is not in the files and some of it was purely mental judgment and the report does not show this information in any place. As to the power plant and substation equipment, it does not show it. As to buildings it shows it only to the extent that it shows the unit price which was applied for each principal item which entered into a building construction, such, for illustration, as excavation or concrete or steel. The unit price is the result of all the other considerations, though. In reaching his final conclusion he used all the experience he had had in the costs and all other matters, as an engineer by profession, and all the experience of the members of our staff in their various respective fields.

The various reproduction cost figures which appear on these summaries beginning with page 13, power plant and substation equipment, under the general heading, "Detail Summaries," volume 1, are taken from what we call our detail priced inventory of power plant and substation equipment, which appears in volume 2 and 3 of this report, occupying all of Volume 3 and a large part of Volume 2. There are shown not all of the details which are set forth on these particular summary sheets we are talking about, but what "we consider" to be a very complete physical description of the items and the reproduction cost of the various items; sometimes in more detail and sometimes not. They cannot be traced right to it excepting that everything appears in the same color. He can take any item here and find it. There are no cross references. If you will turn to Volume 2, there is an index in the front of it which applies to both Volume 2 and 3, and which gives the page numbers opposite the beginnings of the details with respect to various plants and with respect to the various Interstate Commerce Commission accounts with those plants. We were speaking of Benning Power Plant. This index in the beginning of Volume 2 gives, with respect to Power-Plant Equipment, Benning Power Plant, page 1, boilers and accessories under "Benning Power Plant, page 17." The first item that appears on the detail summary of Benning Power Plant and Substation Equipment, page 13 of part 2, Volume 1, of which we have been talking, is the item of certain boilers of the account E-309, boilers, furnaces and accessories. That first item in reproduction cost amounts to $136,643.56. That same figure again appears on page 18 of the detail priced inventory of power plant and substation equipment in the beginning of Volume 2. This detail does not subdivide that figure. In this particular case it merely gives much further information with respect to the boilers, for the purpose of fully identifying them, and for the purpose of

setting forth the various elements which would have an affect upon the cost of reproduction.

Subject to the same reservation as expresseed by Mr. Pillsbury, he explained in the same way the inventory subdivision E,
419 Transmission and Distribution System, as covering Account E, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 333, totaling $4,448,662.27, and traced up through various summaries.

420 Depreciation.

I made a general statement as to depreciation the other day, and the basis and conclusions set forth the general basis of depreciation. The depreciation, as determined by us refers only to loss by reason of proportional loss in useful life. It is derived or, rather, estimated, by determining, where possible to determine, age to date, and by estimating remaining life after date, to that time when the item in question, in our judgment, will have served its useful life in the performance of its present functions. The determination of age to date should be made always, in my estimation, as a matter of co-operation between the Company and the public or the public's side, because age to date should be facts and absolutely nothing but facts, since age represents a period of years between the time being put to use at the start and the date of investigation. We did not have that co-operation, but ascertained by a study of all records which we could obtain which would throw light upon dates. The records were the working sheet of the accounting department, that show dates of purchases; all sorts of information which we obtained by ourselves through our own study of company records, showing when things were purchased or when they were put into operation. We studied not only books, but records, drawings, maps, everything we could find, card index system, anything and everything that we thought would give us information as to age. We asked all the questions we thought we could ask, but very few of them were answered as to age, by the employes. Where we could find information we had to estimate it the best we could.

Our accrued depreciation is determined by first estimating the residual value of each reproduction cost item, which we separately depreciated, first determining the residual value, which means the value which, in our judgment, would remain in the item after the useful life had expired, and for any other purpose, re-sale, re-use, scrap or whatever that purpose might be. That is the amount which we allow, which depended in some extent upon whether we thought the item would become scrap or merely be used somewhere else. After we determined the residual value, we deducted it from cost of reproduction, giving us a difference, which is the amount with respect to that item, subject to depreciation. That we called depreciable cost, a term which we coined here. The term ordinarily used is wearing value." As I said before, whether wisely or unwisely, I discarded wearing value for two reasons: First, because I wanted to try to indicate that we are not setting forth value, but

costs and part of the dollars respresented by our cost of any given item, subject to depreciation. That depreciation is not by wear, except in extreme cases. So I have always believed that wearing value, for this method of depreciation, is a misnomer. We call it depreciable cost.

Now then, the depreciated part of any depreciable cost of any item corresponds to your proportion of the useful life over with—nothing else. Our final reproduction cost less depreciation includes, then, what is left undepreciated of our depreciable cost plus the residual value still left. Where age could not be ascertained, we made such studies as we could, and all we could, and used our judgment for the purpose of arriving at a comparable result. We tried to arrive, and to the best of our ability did arrive, at a figure corresponding to the process which I have just enumerated, giving the same result, indicating, in other words, the proportional part of life expired. I mean the staff when I say "we." I personally have not independently determined every figure that appears in this report myself, for no human being could do it. I have directed it all and passed judgment on it all. Some of these studies of remaining life necessarily were made in the field by engineers of the particular division under my specific instructions and, I think I may say, more or less training in order to fix a method of judgment as to remaining life, on what it should depend, and all that.

Witness was expressing his individual judgment as to the value and reasonableness of the accrued depreciation of each item.

421 *Inventory, Subdivision E.*

Transmission and Distribution.

I. C. C. Acct. E-319.

This particular account, poles and fixtures, is pretty thoroughly subdivided. Some of the others are not.

All of the figures which appear on this detail summary, transmission and distribution, beginning with page 52 of Part 2, Volume 1, are taken from what we call our priced detail inventory of transmission and distribution, occupying a large part of volume 4.

Explaining the figures there obtained, Mr. Pillsbury says:

"The heading "Transmission and Distribution" is an arbitrary one of our own, merely to facilitate the purpose of inventorying, and setting forth the data."

He had separated the divisions for valuation bureau and without repeating the number, it comprises poles and fixtures for overhead wires, lamps, etc., underground conduits and manholes, transmission cables and appliances, and distribution cables, wires and appliances, overhead and underground, the line transformers, and devices in connection therewith, the electric service connections between the company's lines and its customers' premises, electric

meters for recording the consumption by the respective customers' appliances, the installation of those meters, which happened to be a separate Interstate Commerce Commission account, the street and park lighting system as owned by the Company, exclusive of conduit, which is already included, as prescribed by the Interstate Commerce Commission, under the heading "Underground Conduit," commercial arc lamps, glower or Nernst lamps and electric signs, and a few other miscellaneous items which pertain to that part of the Company's property outside of its buildings and plants.

For the purpose of inventorying poles and fixtures, underground conduits and accessories, cables and wires of transmission system, cables, wires and appliances of distribution system, line transformers and devices, and street and park lighting equipment, we divided the District of Columbia into 222 sections. We made a map of each one of those sections and assigned a staff of engineers consecutively to the inventory by those divisions, one division at a time by one group of men. We prepared forms to accompany the maps to guide their minds in ascertaining the required data, and to facilitate accuracy and time in entering it.

We used a checking system; a considerable portion was done over again by other crews in the field. Certain parts only. I would pick out certain parts, or have the head of the department pick out certain parts under my supervision, and assign them all over again with complete clean blank sheets and complete clean section map, and another crew who perhaps had been working in some other part of the city, to do it all over again, to get a check on the accuracy.

He gave a very thorough personal supervision to the preparation of all the forms and the instructions issued, quite a study of data that came in, and very frequent trips in the field, largely by automobiles, around to the various crews, to see what they were doing.

422 The same general method applied as he described in regard to other departments was used in this inventory.

423 General Equipment, "G."

He followed the same method in regard to General Equipment "G" starting on page 9, of Part 2, Volume 1, identified as subdivided into I. C. C. Accounts E-306, General Equipment; E-331, Electric Tools and Implements, and Account E-332, Electric Laboratory Equipment.

One of these cost accounts is the same name as our general heading, but it only includes the items which are specifically set forth by Interstate Commerce Commission instructions as embodied in Account E-306; and his inventory designation "General Equipment" is more comprehensive than is the I. C. C. account. For illustration, taking first the Interstate Commerce Commission Account E-306, General Equipment, first into General Office Equipment, General Shop Equipment, General Store Equipment and General Stable Equipment. Then as to General Office Equipment,

we have shown the amounts at each location where we found such equipment. The same is true with respect to General Shop Equipment, etc. The details of this are found in Volume 5. They constitute the last portion of Volume 5. The figures and inventory begin with page 1 following that division sheet, not page 1 of Volume 5, but page 1 immediately following the division sheet G, General Equipment.

He made the same response to this as he did to the other inventory divisions as to their accuracy and fairness.

424 "General Costs."

Inventory, Division "H."

Interstate Commerce Commission Accounts E-301, Organization (nothing);

E-334.	Engineering and Superintendence	$350,245
E-335.	Law and expenditures during construction not included in E-338	23,940
E-337.	Taxes during construction	483,654
E-338.	Miscellaneous construction expenditures	634,657
E-339.	Interest during construction	1,492,497

General costs comprehended what are usually termed overhead charges. They constitute certain costs which in our judgment would actually be incurred by the owner of the utility in such a reproduction of the physical properties only as we have outlined, and are the costs which as an expert engineer, familiar with construction, would, in his opinion, be incurred in the reproduction of a plant similar to that of the Potomac Electric Power Company.

425 Depreciation as Applied to General Costs.

He said he had arrived at depreciation on general cost by first considering the accrued depreciation which we had estimated on the base, and on the respective divisions of the base. By "base" he means these amounts which he had previously been discussing—A. land; C, structures; D, power plant, etc.—and then by a consideration of these general costs to the extent to which those would depreciate with the base to which they applied, the extent to which they would remain undepreciated regardless of any depreciation at the base; and the figure of $1,492,497, given by him as the reproduction cost, General Costs, and his figure of $1,324,143.05 as the reproduction cost less accrued depreciation was fair and reasonable with the same reservation as before stated.

In the same way, the witness traced these through the several summaries above mentioned. From page 3 of part 2 of volume 1, to page 10 of part 2, volume 1, and page 58, part 2, volume 1. "There we divide General Costs into our own various divisions, constituting Omissions and Contingencies, Legal and Organization Ex-

pense, Engineering and Superintendence, Insurance during Construction, which does not include liability insurance, liability insurance being in the unit prices; Taxes During Construction, and Interest During Construction. These general costs appear in no further detail in the report.

426 Conclusion.

Mr. Syme: I will ask you * * * whether in your judgment as an expert engineer and from the information you obtained through this investigation, assuming only for the purpose of this question that the values of land as found by the Assessor were correct, reserving the cor-ections if they are not, if the total there given by you of $9,965,088.08 for the reproduction cost, and $8,127,343.92, reproduction cost less accrued depreciation, of the physical property, is a fair and reasonable valuation.

Mr. Phillsbury: Subject to the reservation made, yes sir.

427 Materials and Supplies.

As to materials and supplies we found it to be what I at least considered, practically a physical impossibility to inventory the materials and supplies of the Company without their cooperation, as they were so scattered, and are being moved about more or less, also from day to day. We therefore took as our basis for materials and supplies the amount which the Accounting Department ascertained from an investigation of the books of the Company, as representing the book value of those materials and supplies as of July 1, 1914, according to their books.

428 Working Capital.

As shown at the bottom of page 31, Basis and Conclusions, I there made this statement, "The Working Capital as included consists of one-eighth of the annual operating expenses and real property taxes, as of July 1, 1914, plus an additional amount for property extensions."

The additional amount was purely an arbitrary division, representing judgment. The basis of that is one-eighth of the annual operating expense and property taxes, the annual operating expenses being determined by our Accounting Department. And in his judgment that is a fair amount to be allowed for Working Capital.

429 *Account E-321.*

Mr. Syme: I notice that you have two "Star" items there, the first star item being "Items of transmission system Account No. E-321) within the District of Columbia, but used wholly in connection with energy transmitter without the District of Columbia, not included." I want you to explain that.

Mr. Pillsbury: These were certain poles, wires and appliances in connection therewith, within the District, which in our judgment were serving no purpose whatever except the transmission of electrical energy to point outside of the District, for use outside, which were eliminated from this report, for that reason, and not included in the reproduction cost. Not because we wished them to have no weight but merely because our instructions were specific to include only physical items at the time of the investigation actually used and useful within the District for operations within the District. These instructions came from Dr. Bemis, verbally.

No deduction was made for instance at a power plant like the Benning Power Plant by reason of the fact that a part of the energy generated within it is delivered outside and used outside. Such a deduction might have corresponded to this one. It was not made because in our judgment the plant was not over-built, would not have been over-built even though nothing had been transmitted outside. In other words, in my judgment, speaking now strictly for myself, if nothing was transmitted outside of the District, and they had that same identical plant, we would have included it in its entirety, because we would have considered it useful. But certain of these lines, so far as we could judge, being forever used wholly for service outside of the District, we considered strictly within the limits of the instruction which I have given, and excluded them.

Asked to explain the three "Star" items, the witness said:

That three star item applies to the percent, 2.78, at the bottom of the page, under the heading "Annual depreciation per cent", and is a composite figure only. It is a composite figure mathematically derived from many independent figures with respect to individual items of the plant. That composite figure, 2.78, represents the annual depreciation per cent on the basis of this straight line, but does not apply to the reproduction cost, $9,965,088.08. It applies only to those cost items which we were depreciating—that it, to the depreciable costs. The correct composite figure applying to this total is 2.53, as shown on page 32 of Basis and Conclusions, Part 1. It is merely a mathematical figure, but I do not think it is a weighted average * * * It means nothing in particular except that by means of it we can at once derive another figure the same exactly as though we had derived the corresponding figures in detail and added them together; but it means nothing else. * * * We also calculated our annual amounts on an entirely different basis, and this particular figure, $251,637.76 appearing on page 32 of Basis and Conclusions, appears also on this summary page 3 of Part 2, that we have been talking about; that is merely a result and not a means to a result.

430 Depreciation.

Mr. Syme: Mr. Pillsbury, at the close of your report you have apparently two paragraphs: one is annual depreciation corresponding to and commensurate with cost of reproduction less accrued

depreciation, $251,637.78, and two percentages there. Those have nothing to do with the reproduction cost or the reproduction cost less accrued depreciation?

Mr. Pillsbury: They have something to do with the reproduction cost less accrued depreciation, but not with reproduction cost.

Mr. Syme: What significance have they in connection with these totals on page 32, $9,965,088.08 and $8,127,342.92?

Mr. Pillsbury: Only this: They are derived figures. The $251,637.76 represents the amount of money which we will say should be refunded to the company for a year as of July 1, 1914, to compensate for the deduction we make as of that year or as of that time, through our process of arriving at accrued depreciation. $2.53 is the percentage which multiplied by the reproduction cost, would give that $251,637.76, and the $2.72 is the figure—as stated here, C to H inclusive, eliminating Land, Materials and Supplies and Working Capital, which we do not depreciate.

Under this Act our understanding was that one duty of the Commission would be the determination of rates of depreciation. The judgment of Dr. Bemis and myself in consultation at the beginning of the work was that if depreciation was to be deducted from the reproduction cost of the property as a basis for rates, it should be calculated according to a certain method--that is the method which I have outlined. It is not a suggestion that it be adopted. It is a suggestion that if it is to be adopted. It is a suggestion that if it is to be deducted this is a method by which it could be determined.

It was also decided that we should independently determine according to our judgment the annual amount in dollars, and the corresponding precentages, constituting an annuity to a depreciation reserve on the basis that for the purpose of rates no depreciation should be deducted from the reproduction cost, but that rates should be based upon reproduction cost. It was decided further that under that theory we should calculate the rate of depreciation according to one method, and that method was decided upon as a 4 per cent sinking fund method.

These represent then the annual depreciation amounts and percents on the annuity basis. That is on the theory that this money is not being refunded to the Company, but is merely being set up in a depreciation reserve, and is not their property; that is, that it is held in trust by the Company. Instead of working out a number of them at 3½, 4 and 4½, etc., as it was first discussed, my own judgment is that 4 per cent is about right for that particular purpose.

Mr. Barbour: I want to ask this one question about this matter: Your conclusion is that the property of this company depreciates on an average of $251,637.76 a year?

Mr. Pillsbury: On the straight line age life basis, yes. I want to make that a little clearer. Our conclusion is that $251,637.76 of the depreciable costs of the property, as embodied in this report, are used up each year through corresponding loss or consumption of useful life. That is all we mean.

Mr. Barbour: And that to compensate it for that loss it should be permitted to collect but $159,441 each year?

431 Mr. Pillsbury: By no means. It should be permitted to set aside $251,637 if this accrued depreciation is to be deducted; or $159,441.41 if this accrued depreciation is not to be deducted .

Mr. Ham: Do you mean to say that that would be so on the same basis?

Mr. Pillsbury: They correspond exactly as to cost of reproduction, depreciation cost, residual value, age, life and percent remaining; they correspond as to all calculations, item by item, minutely throughout the whole work.

In my opinion the amount which the Company should collect should not be based upon this straight line method unless a corresponding amount is to be deducted from the property. In my opinion if there is to be no deduction from the value of the property or from its reproduction cost by reason of accrued depreciation, it can only be on the theory that no money is being refunded to the Company, and it can then only collect the minimum amount, which will bring about the required renewals, which would mean an amount accumulating at some interest rate. They are the only two logical combinations, except this 4 per cent basis, subject to some discussion as to whether or not that would be the average actual interest earned.

Mr. Bowen: If the Commission finds ultimately that there is no accrued depreciation—in other words, that the property is not physically deteriorated or not any less efficient or less serviceable—and therefore there should be no deduction for depreciation, then the Commission, when it comes to the point of fixing a rate should say, or ought to say, that they be allowed this figure, the company be allowed this figure, $159,441.41.

Mr. Pillsbury: I should say they should be allowed that figure if the 4 per cent is determined upon as the proper interest rate, and if the ages and lives we have determined upon are what are finally accepted.

432 Lands—Useful.

Chairman Kutz: In your report on Land, page 11, you refer to certain plots of land included "where some doubt as to usefulness for electric operation arises, but which were included for lack of information as to the company's claims or intentions in the matter."

What items did you have in mind when you wrote that paragraph?

Mr. Pillsbury: I cannot answer that now; the report does not indicate. I can look that up and tell you. I do not mean to imply there that there are some which we thought should be eliminated. They were merely some the mere usefulness of which was pretty difficult to determine, the company giving us no information as to what they intended to use the land for. I mean parcels of land not now used but which may be used.

433 "Useful Lands."

Mr. Pillsbury: Our interpretation of the word "useful" applies as to land, to land held for logical, proper and fair future use. We excluded it for two reasons—first, that we were unable to ascertain from a study of the records of the District of Columbia, in consultation with the officials of the District in charge of the various books, that the Company owned the land. We verified all other ownerships. That we could not verify at all. We could find nothing to establish in any way that the company owned the land. Secondly, we ourselves could not see any reason for its usefulness; but we do not mean by that to say that we take the position that it is not useful. It might be that in a very brief discussion they could set forth some very good reasons why, for strategic purposes, that land ought to be purchased, and was being held for future use.

But we did not have that broad survey of their future intentions here that would enable us to answer that question, and it did not appear to be in their ownership so far as the records go.

For those two reasons we excluded it, but only for the purpose, as I think was brought out here, of letting the Commission decide whether it would go in or not after they had obtained the company's statement. It is carried on the books in the investment account of the company.

Witness was then excused.

434 *Pillsbury's Exceptions.*

Mr. Pillsbury was recalled for cross-examination on October 30, 1916.

Before proceeding with the cross-examination, the counsel for the Potomac Electric Power Company submitted a motion as follows:

"Without waiving any of the exceptions heretofore stated, to the reception of Mr. Pillsbury's report, or to any and all evidence taken in connection therewith, I now move, on behalf of the Potomac Electric Power Company, to exclude all of the report and all of his evidence in regard thereto, on the following grounds:

First. Because it is not accurate or complete, according to the statement of the witness himself;

Second. Because it is hearsay, or founded upon hearsay, and is not the result of his own knowledge, investigation or consideration;

Third. Because his experience does not qualify him as an expert engineer or appraiser for the valuation of such a property as that of the Potomac Electric Power Company;

Fourth. Because said report is incomplete and inaccurate as to the value of the property of the Potomac Electric Power Company as of the present time;

Fifth. Because it is not the result of personal knowledge, personal investigation of the witness, or of any other person or persons shown to be competent to compile the same, but is the composite result of

investigations and examinations by unknown persons whose competency has not been establishing;

Sixth. Because it omits many elements of cost necessary to be incurred in reproducing such a property as that of the Potomac Electric Power Company;

Seventh. Because said report is compiled for a period and upon the basis of costs existing more than two years anterior to the present time, and no attempt has been made therein to state present values or costs.

Chairman Kutz: Do you wish to say anything, Mr. Syme?

Mr. Syme: I think it is the same general objection, Mr. Chairman.

Chairman Kutz: The motion is overruled.

Mr. Barbour: I desire to note an exception to the ruling.

Mr. Syme: Just let me see the first of Mr. Pillsbury's examination. I may want to ask him one question in regard to some reservations that he made there. I think that will apply at any time during the hearing.

And the same was renewed on page- 1806 and 1807.

435 *Pillsbury's Qualifications.*

(Cross-examination:)

He was born in Minneapolis, Minn., and resided there until manhood and is his home now. That he took special work at Purdue University and University of Minnesota. His work at University of Minnesota covered a period of years at frequent intervals; during the time he was city electrician of Minneapolis. He received no degree from either of these institutions. As city electrician for Minneapolis his duties "were very largely in connection with the outside distribution system but included interior electrical equipment. That when he first took office, the streets of Minneapolis were full of overhead pole lines. The roofs of downtown buildings were covered with them. One of his principal duties was getting all of that overhead wiring underground; the promulgation of proper safety provisions.

He rewrote the ordinances two or three times which covered all electrical wires and outside and inside electrical apparatus and construction. It was necessary to rewrite the ordinances because the art was changing so fast that it was necessary to keep pace with it.

At that time he merely attended certain classes at Purdue University.

He is a "Professional Lecturer" in Purdue University. The title involves nothing and merely indicates that he has given a course in valuation of public utilities under that title.

He was engaged by the Great Northern Railway Company as electrician for the Hotel Lafayette at Lake Minnetonka only operating during the summer months and owned by the Great Northern Railway Co. It was a small plant. The hotel was 750 feet long and three or four stories high, a very big summer hotel. He operated

there a gasoline gas plant and an electric lighting plant. The capacity was something like 75 lamps, 2,000 candlepower.

He designed and supervised an alternating current steam and electric power plant for the City of Marshall, Minn., with about 2,000 inhabitants, and designed and installed a complete electric lighting plant. That was prior to his becoming city electrician of Minneapolis which followed immediately upon completing the work at Marshall. The Marshall plant was a small affair.

He moved the principal machinery for the Hotel LaFayette plant from the shops of the Great Northern Company at St. Paul. The hotel plant was not a public utility; the City of Marshall plant was.

As city electrician of Minneapolis he received a salary of $100 and held the position for four years and resigned shortly after his second reappointment. The city owned no plant at that time. His duties as city electrician besides writing ordinances were inspection of electrical apparatus and wiring from the standpoint of fire, casualty and damage to persons and property, as well as the bringing about of the placing of wires underground, which was his principal duty at that time, and took some part with the city engineer in designing an underground conduit system but the system was not installed. The money was not provided "for political reasons." The council itself rejected it. He could not state or approximate the population of Minneapolis in 1899.

436 As city electrician he was subordinate to the building inspector as he had nothing to do with the construction of any of the plants in Minneapolis, except to see that they did not endanger the property they were in or other property by means of fire and conformed to the ordinances designed to avoid those things.

He resigned this position in 1899 and became general superintendent of the Minneapolis International Electric Light & Heating Company at a salary of $125 per month and later increased to $150 and held this position until 1901. That was a small plant—something like 500 kilowatts. It served quite a large down-town territory extending for several blocks in several directions. There was no street lighting. It was almost wholly a matter of incandescent lighting for business houses, a small amount of power and steam heat. Used direct current. Does not know how many customers he had as his maximum. It served eight or nine blocks in one direction and four or five in another; that was the territory included but he does not mean that they had all the business in that territory. It was not operated under a franchise.

They used three Seaman & Halske generators, one of 200 and the others 250 each. Business was successful and was later taken over by the Minneapolis General Electric.

Mr. Barbour: Because it defaulted in interest on its securities?

Mr. Pillsbury: I do not know the details of the financial transaction. It was taken over by the Minneapolis General Electric Company. It was a successful competitor. I don't remember about the dividends.

Mr. Barbour: What do you mean by "a successful competitor"—

that it forced the other company to buy it and that was successful competition?

Mr. Pillsbury: Practically so, yes.

At this same time he acted as consulting engineer for the designing of a number of plants, including an hydro-electric plant on the Mississippi River for the operation of flour mills on both sides of the river. That was a small plant; somewhere around 400 kilowatts.

He also designed and installed during that time a plant for the Minnesota Soldiers' Home and afterwards the entire mechanical equipment of the Minneapolis Chamber of Commerce Building, both individual plants.

After the absorption of the Minneapolis International Electric Light & Heat Company he continued his practice as consulting engineer and designed the complete Municipal electric plant for the City of New Ulm, Minn., a city with a population of about 4,000. The plant was approximately one of 250 kilowatts to light the streets and serve private citizens; there was no other plant there.

In 1902 he entered into partnership with Mr. W. I. Gray or with W. I. Gray & Company of Minneapolis, contracting engineers, and carried on the general engineering and contracting business; and one of those contracts was for the equipment of the new Minnesota State Capitol. That was quite a large power plant for an isolated building—something like 450 kilowatts and covered the entire mechanical equipment including the power plant.

His work from 1902 to 1904 was almost wholly on the Capitol. He does not know whether he was instrumental in securing the contract in any way.

From 1904 to 1906 he carried on a combined engineering and contracting business in St. Paul, under the name of the Northwest Engineering Company. The work was principally reconstruction and additions to plants. He worked over a pretty wide territory. He cannot remember any important complete plants. The capacity of the largest plants that he designed in that period were small municipal light and power plants and industrial plants such *such* as
437 shoe factories, water works, and various industrial plants around St. Paul. He cannot remember any municipal plants. Could not name one at this time. It was principally a matter of selling and installing individual units.

Then in 1906, he opened offices as consulting engineer in the Metropolitan Life Building at Minneapolis, and has maintained that ever since; and moved back to St. Paul.

His principal offices were at Minneapolis.

The St. Paul offices was an independent office with quite a large size staff of men there, an average of 7 or 8; designing mechanical and electrical plants and equipment for any purpose. His present permanent staff is about ten altogether who are located at Minneapolis and St. Paul. He now maintains three permanently in St. Paul and they change back and forth all the time.

In 1906 he was retained as consulting engineer to the Minnesota State Board of Control, and had direct supervision of the power plants of the State institutions. The basis of his employment was

strictly percentage on the work done. There was some per diem work at first.

It was largely in connection with that work that his St. Paul office was maintained. But his work was not confined to the State work and for over six years he has averaged from one hundred to one hundred and twenty jobs all the time on the books, many of them were small and averaged from $2,000,000 to $3,000,000.

During that time he installed some municipal plants but he did not specialize in them or solicit them.

They did municipal work in Rochester, Minn., Redfield, S. D., and the village of Hibbing, which has a population of about 10,000. The Rochester plant is just finished. Rochester has a population of about 8,000. The capacity of the plant is about 1500 kilowatts. Does not know the population of Redfield, probably two or three thousand.

During this same period his firm reported on properties all over the northwest for trust companies. He also reported directly for the Cities of Duluth, Minneapolis, St. Paul, Stillwater, Fergus Falls, Detroit, Red Wing, Emmettsburg, Iowa, Spencer, Iowa, and the City of Philadelphia, but that is another matter. Those reports are made for municipalities each year. The work he does for trust companies includes reports on properties for the purchase of plants or the issuance of bonds. In order to make such report they investigate the physical properties, the character, personnel, earnings, expenses, probable future growth, possible improvements in service, possible reduction of operating expenses, etc.

He regards all those matters as essential and necessary in arriving at the value of plants. He made reproduction estimates as to some of these properties. All depended upon the nature of the case and upon the available time and the detail he went into. For trust company purposes usually those reproduction estimates were strictly estimates made by short-cut methods, or, in other words, made in a hurry. A trust company ordinarily would not and could not ask him to make an estimate with the detail he did in this case; could not spare the time.

Mr. Barbour: What rate cases have you been connected with?

438 Mr. Pillsbury: Principally with the Minneapolis Electric Light, Minneapolis Gas, St. Paul Electric Light & Power, Gas & District Heating, Duluth Electric Light & Power, and any number of little cases that I don't remember, small towns where the question of street lighting rates, special rates, and discriminatory rates came up every little while. I can't remember all of those. They were valuations primarily for rate-making. As to the Minneapolis Electric Light, on my part that was not a matter of valuation. It was strictly a matter of rates.

The largest industrial plant he has ever put in was the Northwestern Knitting Company in Minneapolis with a capacity of 800 kilowatts.

Was retained by the Old Colony Trust Company in Boston to appraise all of its improvements to physical properties of the General

Electric Company which required him to certify to the amount of expenditures for improvements which could be capitalized and should be capitalized under the provisions of the blanket mortgage to enable the mortgage trustee to issue bonds in conformity with the provisions of the trust.

In 1916 he was employed by the City of St. Paul to report on the electric rates as charged by the St. Paul Gas & Light Company. There was no particular result to the investigation. He thinks the company controlled the Council politically.

Mr. Barbour: How was it the Council ever employed you if they did not have confidence in you?

Mr. Pillsbury: I think they did, first, last and all the time.

Mr. Barbour: They employed you, and then did not follow your report; is that it?

Mr. Pillsbury: Practically so. They did nothing whatever. No action was ever taken.

Mr. Barbour: And you state now, under the sanctity of your oath, that was because the company controlled the City Council?

Mr. Pillsbury: No, sir; I did not. I did not so state. I stated exactly what I thought, and the answer speaks for itself.

Mr. Barbour: You are unwilling to state now, under the sanctity of your oath, that your report was disregarded because the company controlled the Council?

Mr. Pillsbury: I never did so state, and I do not state so now.

Mr. Barbour: You distinguish between what you think and what you know, then?

Mr. Pillsbury: Most assuredly.

He is not prepared to state any facts other than the fact that they did not adopt his report. His recommendation was a slight reduction in rates. No effort was ever made to put it through the council. Witness does not think merely because his reports were disregarded by public authorities that there is some sinister influence at work.

The appraisal that he made for the City of Duluth was
439 not a report on rates of any existing company. It was for that purpose, but it was done indirectly. They were engaged to design a complete municipal plant in great detail ready for bids and to report on the operating costs and on what the rates could be made with such a plant. They made no reference whatever to any other plant or any other rate. They did not recommend or set forth any schedule of rates in that particular case, but merely the mean or average rate which was somewhat less than the company was charging. The company voluntarily and immediately reduced its rates to correspond, and later the matter was amicably settled apparently to the satisfaction of all parties, and his plans were never carried into effect. They were never intended to be carried into effect. The plan was never taken up afterwards. He would not say that this was merely a scheme to hammer down the rates. The officials who engaged him thought that the way to treat that particular case was not to make any appraisal of the company properties and investigate its rates but to determine what could be

done by a competitive municipal plant in order that comparisons might be drawn. They were engaged to design a complete municipal plant and to determine fairly and honestly, which they did, what the thing could be done for, and they did that. There was no idea it would be built.

In the Duluth case they considered only the cost of reproducing the physical property and certain intangible values and he gave value to certain intangibles. He has not seen the report for so long that he would rather not testify as to just what intangibles he recognized.

In the early part of 1914 he re-appraised, for the City of Minneapolis, the physical properties of the gas light company, and served as consulting engineer of the street railways of Detroit, Mich. He was appointed by Dr. Bemis who had the contract for the valuation. He employed the witness and the witness employed the engineer in charge. The result of the whole controversy was that the matter of purchasing the railways was submitted to a vote of the people and voted down. That was not the first time that he had worked in conjunction with Dr. Bemis. The same Dr. Bemis was director of the valuation Bureau of the Public Utilities Commission. He addressed his report in this case to Dr. Bemis because Dr. Bemis asked him to so address it, though Dr. Bemis did not employ him in this case.

Mr. Barbour: By what authority did Dr. Bemis direct you to make your report to him?

The Chairman: Mr. Barbour, that is a matter of organization, for which the Commission is responsible. We will be glad to give you any light on that that you want. Dr. Bemis was the director of the Valuation Bureau of the Public Utilities Commission. A certain organization was agreed upon of which Mr. Pillsbury was a member. That has been a matter of common knowledge, and it has been stated in our reports for years.

Mr. Barbour: I am endeavoring to get that information upon the record. Of course there are things that we know and there are things that the Commission knows we are aware of, but everybody does not know it.

The witness does not know that Dr. Bemis ever approved of his report and has never asked him if he has and Dr. Bemis has never told him that he did though as a matter of fact it has been submitted to him.

The salary of the witness is on a per diem rate of $50
440 for two-thirds full time, to be paid for all actual time, but only to devote two-thirds time to the work, plus complete traveling expenses of seven round trips between Minneapolis and Washington, D. C.

He assumed that it was upon the recommendation of Dr. Bemis that he was employed.

Dr. Bemis is in no way interested in his compensation. There have been conferences at various times between Dr. Bemis and himself with relation to the progress of the work and with relation to some of the main questions involved. Perhaps his views are reflected in this report as to the main basic feature. But the report is not the result of his views except as to one or two basic principles.

Mr. Barbour: What are those basic principles to which you refer?

Mr. Pillsbury: The specific instruction first, that I should have nothing to do with anything whatsoever but actual physical property; that that should preclude all consideration of anything pertaining to financing, organization, for instance, or bond discounts, or brokerage features; that the property to be considered should be the physical property within the District of Columbia actually used and useful at the time of our investigation; that the cost of reproduction should be a strict cost of reproduction, the real reproduction in a strict sense.

Mr. Barbour: If you had been attempting to value or to estimate the cost of the reproduction of the property *of the property* of the Potomac Electric Power Company, as it exists today would you have so confined your estimates?

Mr. Pillsbury: I probably would have so confined them within the one sum, to which, however, other things would have been added, but treated separately.

Mr. Barbour: You do not think, then, that the cost of physical reproduction, as stated in your report, does cover the cost of reproduction of the property as it now exists?

Mr. Pillsbury: No, sir.

Mr. Barbour: If any such construction is sought to be placed upon your work it is not the construction that you would place upon it.

Mr. Pillsbury: I think the report itself fully covers that point. I would like to make a statement, if I may, in connection with the answer which I just gave. I merely wish to say that some of those items which I was not to include I did not mean to imply were not finally to be included in any form. I merely mean to imply that I specifically, was to have nothing to do with them and they were not a part of my work.

Mr. Barbour: Why was it you were not permitted to have free play of your judgment in that direction?

Mr. Pillsbury: I will not say that I was not. I was engaged for a certain part of this work. My understanding was and is that Dr. Bemis was to perform directly another part of the work.

441 Mr. Barbour: Was Dr. Bemis ever known to make any allowances for any of those other things that you refer to?

Mr. Pillsbury: I do not know.

Mr. Barbour: Do you not know, Mr. Pillsbury?

Mr. Pillsbury: No, I do not know.

Mr. Barbour: Do you know of any instance in which he has made allowances for any of those things?

The Commission objects to the form of question.

Mr. Barbour: And the Commission declines to permit the witness to answer?

The Chairman: Yes.

Mr. Barbour: I desire to save an exception to the action of the Commission in not permitting the witness to answer.

442 Intangibles.

Mr. Barbour: I will ask you this, Mr. Pillsbury: If any engineers in making a report and estimate on the cost of reproduction of property, when unhampered by instructions do or do not give effect to such elements which you have acknowledged?

Mr. Pillsbury: I do not think that question can be answered directly, because there are many varying methods adopted by engineers, and many ideas advocated by them; but if an engineer was engaged to report upon the cost of reproduction of a property he would naturally have to report upon the reproduction of the whole property.

Mr. Barbour: You have not done that in this case, have you?

Mr. Pillsbury: No.

Mr. Barbour: You have not done so because your instructions did not permit you to do so?

Mr. Pillsbury: Because I was not engaged for that purpose.

Mr. Barbour: In response to a question by Mr. Syme you have stated that you were in consultation with the Commission from time to time. Was your freedom of action in any way curtailed as a result of those consultations?

Mr. Pillsbury: Only financially.

Mr. Barbour: How do you mean "financially"?

Mr. Pillsbury: I mean we could not always get all the money we wanted to do all the things we wanted to do.

Mr. Barbour: If you had had sufficient funds at your disposal would you have brought your report down to date or approximately the date here?

Mr. Pillsbury: I would have done so if I had been permitted to have done so.

Mr. Barbour: Why were you not permitted to do so?

Mr. Pillsbury: I say I would if I had been permitted to do so. I do not mean that permission was denied me. It never was asked for. In other words, I would have liked to have done it.

Mr. Barbour: That would be necessary in order to make the report complete, would it not?

Mr. Pillsbury: As of this date; yes.

The Chairman: But not necessary to make the valuation as of June 30, 1914?

Mr. Pillsbury: Not at all.

443 Dr. Bemis.

His work was done under the immediate supervision of Dr. Bemis. His directions were oral. Nor did he receive any written directions from the Commission covering the scope of elements to be included or excluded from his valuation though he has discussed with the Commission the methods being employed in the scope of his work. In other words the Commission was cognizant of the methods being pursued.

The witness admitted that in Section 6, paragraph 8, from the Act

and especially in quoting the words "used and useful" that the language as used in the Act itself is "used in, or useful to the business of such public utility."

Mr. Barbour: You substitute the conjunctive "and" for the disjunctive "or" there.
Mr. Pillsbury: It would appear so.

Then followed this colloquy.

Mr. Syme: Looking at paragraph 7 I notice the language there is "property used and useful."
Mr. Pillsbury: Yes. The "used and useful" appears on the same sheet just above. It says "actually used and useful." * * * I do not say anything about what I was quoting from.
Mr. Barbour: But I want to find out from what you were quoting.
Mr. Pillsbury: I did not think when I started to answer the question—I did not remember what I took it from.
Mr. Barbour: Can you get that quotation out of paragraph 7 anywhere?
Mr. Pillsbury: No.
Mr. Barbour: So you did not get it out of paragraph 7?
Mr. Pillsbury: I got it out of paragraphs 6 and 7 together.
Mr. Barbour: You combined them?
Mr. Pillsbury: Yes.
Mr. Barbour: That is not the way you usually quote, is it?
Mr. Pillsbury: Paragraph 7 definitely defines "used and useful." We use the words "used and useful" with exactly the same meaning. In our interpretation it means used in or useful to.

The witness does not see any particular distinction between the amount of money it would require to secure the rights of way and the reconstruction of the rights of way.

The witness construes the word "property" to mean everything to which the company has the right of ownership, tangible as well as intangible.

Asked if he had included in his estimate the amount of money that it would be necessary to replace all physical properties belonging to the public utility, the witness replied: "May I answer that this way. The same statement of mine in the report from which you quote you do not finish. The last words of that sentence are "this engineering investigation, however, being limited to physical properties only." That answers your question, I think. We did not do it.

444 Mr. Barbour: Therefore your report is not as broad as the requirements of the law, as you construe it?
Mr. Pillsbury: I do not think it was ever intended to be. I think the law requires other elements besides what we have produced to be taken into account.
The Chairman: The law requires the Commission to do a great many things.

Mr. Pillsbury: Exactly.
Mr. Chairman: Of which you were engaged to do one.
Mr. Pillsbury: That is just what I mean.
Mr. Barbour: I would amend that, with the permission of the Commission, "of which you were engaged to do a part of one."

445 *Pillsbury's Eliminations.*

Mr. Barbour: You have also eliminated physical properties covered in the scope of that provision, have you not? Have you embraced in this valuation the amount of money it would take to replace all physical property belonging to the public utility?
Mr. Pillsbury: No, sir.
Mr. Barbour: Yet the law requires that that be done, does it not?
Mr. Pillsbury: I think it does.
Mr. Barbour: And to that extent, at least, your report is incomplete?
Mr. Pillsbury: Yes, and the report so states, definitely.

446 *Pillsbury's Intangibles.*

Mr. Barbour: Were you, in making this estimate, directed to give any consideration or attention to any specific elements of value?
Mr. Pillsbury: Except under the general term "intangible," and including cost of financing. Anything pertaining to promotion of the business and financing were to be eliminated from my work. * * * I might have given consideration to some of those eliminated items if I had been engaged for the purpose.
Intangible values had nothing to do with the physical property the reproduction of which he was considering.
Mr. Barbour: Can such physical property as this be reproduced without promotion expenses, for instance?
Mr. Pillsbury: Under normal conditions I do not think it could be reproduced without promotion expenses.
Mr. Syme: The question is could it be.
Mr. Pillsbury: It could be, yes. A millionaire, or a multimillionaire could do this whole thing himself if he saw fit.
Mr. Barbour: You would first have to find the multimillionaire, would you not?
Mr. Pillsbury: You certainly would.
Mr. Barbour: And there would be some expense in finding him.
Mr. Commissioner Brownlow: If this property were being reproduced by the Commissioners of the District of Columbia, would there be any promotion expense?
Mr. Pillsbury: Probably not what would be strictly called a promotion expense, no.
Commissioner Brownlow: The Government would have to get the money from somewhere, would it not?
Mr. Pillsbury: It would. It would have to raise it by taxing the people and it costs something to collect the taxes.

447 Depreciation.

The conclusions, as stated in his own report, in regard to depreciation, are his own and he assumes full responsibility for them.

448 Rights of Way.

In making up this report as to the amount it would require to secure the rights of way, he made no specific inquiry.

449 Property Excluded.

Mr. Barbour: Mr. Pillsbury, how did you construe the language "the property of every public utility within the District of Columbia actually used and useful for the convenience of the public," or to what property did you apply it?

The Chairman: The witness has testified that he has been confined to physical property; that his work was limited to the appraisal of physical property.

Mr. Barbour: Limited by whom?

The Chairman: By his instructions from Dr. Bemis, issued with the knowledge and assent of this Commission.

Mr. Barbour: That he could not value anything else except physical property?

The Chairman: Physical property.

Mr. Barbour: Now, in addition to that how were you limited as to the location of that property?

Mr. Pillsbury: Physical property within the District of Columbia used and useful for the service of the District of Columbia.

Mr. Barbour: Suppose there was property outside used and useful only in connection with the business of the company, then you would include it?

Mr. Pillsbury: Yes, I would.

450 Great Falls Power Site.

Mr. Barbour: The specific property I have in mind is the property of the Great Falls power right which is outside the District of Columbia.

Mr. Pillsbury: Of the Potomac Electric Power Company?

Mr. Barbour: Yes, the water rights of the Great Falls. If that is used in or useful to the business of the public utility here it ought to be included, ought it not?

Mr. Pillsbury: It ought to be given consideration.

Mr. Barbour: You have not done that?

Mr. Pillsbury: No; and the report is not as comprehensive as is necessary to determine what it would cost to reproduce all of the properties, no.

Mr. Barbour: All of the properties used and useful, as you have limited it?

Mr. Pillsbury: No.

Mr. Barbour: On page 3 of your report, first paragraph, you say, "Paragraph 7 provides that the Commission shall perform the judicial function of determining the valuation of the property and the fair value thereof, at the time of the valuation," presumably after full consideration of actual cost, reproduction cost of tangibles and intangibles and other elements of value set forth in paragraph 6. Is it your opinion as an engineer that it is necessary to give consideration to all of those elements to approximate the cost of reproduction?

Mr. Pillsbury: All, or their equivalents, yes.

Mr. Barbour: Now, on the same page (3) you say further in the same paragraph, that in accordance with prevailing court decisions you interpreted this to include consideration of the state of depreciation of the property. Who is "you" there?

Mr. Pillsbury: Dr. Bemis. That will qualify my former answer, merely because I did not think of that phase when I answered before. That was another instruction by Dr. Bemis, that I ascertain the extent of accrued depreciation.

Mr. Barbour: And it was in consequence of his interpretation of court decisions that you were directed to do that?

Mr. Pillsbury: Yes.

Mr. Barbour: Do you know what those court decisions are?

Mr. Pillsbury: I do not.

The witness thinks that the consideration of accrued depreciation under the decisions of the courts is a function which the Commission should perform. He is not prepared to state what decisions he refers to. The Minnesota Rate Case would be one, and Smythe against Aimes would be another.

Mr. Barbour: Can you find or point to any provision in this law that requires you to find the cost of reproduction less depreciation?

Mr. Pillsbury: Not specifically, no.

Mr. Barbour: I notice in your report here you refer to paragraph 16 as one of the reasons for making this depreciation estimate that you refer to. That refers purely to depreciation in futuro, does it not?

451 Mr. Pillsbury: Yes, and it is so stated here. That is another matter, yes.

Mr. Barbour: Can you recall any remote reference to depreciation in the Act?

Mr. Pillsbury: Not unless an ascertainment of fair value implies it or takes it into account.

The statement of depreciation is injected into this report because he (Dr. Bemis) asked me to have it done; he ordered me to have it done at the outset.

Witness does not believe that the time spent in determining depreciation represents money wasted.

The witness thinks that there is a distinction between the use of depreciation for rate purposes and for other purposes. If a new utility were starting out under a commission regulation, and that utility was collecting from its rate payers for the purpose of future

renewals amounts which would constitute a refund of capital to the utility, then I could conceive of no other logical basis excepting the deduction of corresponding depreciation as a basis of rates at all times. I am merely citing that as a simple case where a direct answer may be given.

Mr. Barbour: The rate in the case here is fixed by law, and has accrued depreciation anything to do with the rate for future?

Mr. Pillsbury: That is a matter which I would not be able to answer to myself without full investigation, which I have not made.

Mr. Barbour: Then you do not mean to say in this case that you have deducted that, do you?

Mr. Pillsbury: I state particularly in this report that the report does not indicate that it should be deducted.

542 Date of Valuation.

That date, July 1st, was selected the very first thing in May at a conference between the witness and Dr. Bemis merely as a matter of convenience. He suggested the date but it was just a matter of convenience. Some definite date had to be selected. At that time he expected he would finish the work considerably eorlier than he finally did finish it. The witness selected the day merely to have some starting point "and because by fixing the date early in our work we could immediately begin to gather certain cost data which we could not very well have gathered until after the time of the date had been fixed.

Mr. Barbour: Had you anticipated the work would have consumed as much time as it did, would you have selected a data so far in the past when the time for passing on the matter had arrived.

Mr. Pillsbury: No, sir; I would not.

The report was finally completed about December 1, 1915. It was submitted to Dr. Bemis shortly after that date but witness does not know when it was filed with the Commission. All of the blue printing had not been done. Asked if he knew why this report was not furnished to the Potomac Electric Power Company until some time in May, 1916, the witness said "There was a considerable delay in getting all of the final copies to Dr. Bemis, and, of course, he had to take some time to look them over before they were transmitted to the Commission."

453 Lack of Co-operation.

What is the foundation for that statement, Mr. Pillsbury, that the Company, acting on the advice of its attorneys, declined to furnish you any information?

Mr. Pillsbury: That statement was made to me by several employes.

The witness, however, could not state who they were.

Mr. Barbour: You state, on page 822 of your evidence, that "The Company was extremely courteous, and all of its employes were extremely courteous, in dealing with us and in enabling us to have access to whatever records and data were available, and answered our questions as to ownership, etc." In what specific respect did you request co-operation which was declined?

Mr. Pillsbury: In innumerable respects. * * * From one end to the other—people in every department. * * * In the plants, for instance, the men everywhere—I saw a written statement at one of the substations, purporting to have come from the Company, giving the superintendent in charge instructions as to what he should do and as to what he should not do to us. That was shown to me in strict confidence, but I am repeating that fact on my honor. All the way through the men would refuse to answer questions, but always most courteously. There were some exceptions. Some of the men told us a little more than they thought they had a right to tell, being very careful, however, not to tell us anything that was vital or that would do them any harm. We could not discuss with anyone any thing that could not be seen, even as to the cable which was buried and could not be seen. In order to find out what it was for, if anything could not be seen, we had to trace the thing out ourselves. We could go into the drafting department and pull out tracings, but we could not ask any specific questions. There were some exceptions, but in general there were not.

Mr. Barbour: Were you not furnished all of the tracings and given access to all of the tracings and given access to all of the tracings which you desired?

Mr. Pillsbury: We were given access, but we were declined any information most courteously. I simply state that we could have done the work more cheaply if we had had access to those things, but I am not complaining. We are not in that attitude, and do not want to be so understood.

Mr. Barbour: What I want to know is if it is your position that the company was endeavoring to conceal anything from you or to mislead you?

Mr. Pillsbury: Not at all.

Mr. Barbour: As to anything?

Mr. Pillsbury: I never intimated that, and I have never thought it. I will state that very definitely.

Mr. Barbour: Do you know whether the Company gave Mr. Almert's staff any assistance that it did not give to you?

Mr. Pillsbury: No, sir; I know nothing about that.

Mr. Barbour: Would not the very effort to have co-operated with you along the lines you indicate have subjected or at least laid the Company open to the intimation that it was misleading you if errors crept into your work?

454 Mr. Pillsbury: It possibly might have.

Mr. Barbour: They furnished you with all the information that their officers had, did they not?

Mr. Pillsbury: So far as I know.

Mr. Barbour: Did you ever make any application to any officer of the Company for any information in their possession which they failed to furnish?

Mr. Pillsbury: Not in the nature of actual records or specific data, that is, not so far as we know, nothing of record, so far as I know. That is what I mean.

Mr. Barbour: If it was not a matter of record the Company would have had to have gotten it the same way that you were getting it up, wouldn't they?

Mr. Pillsbury: Yes. The other Companies did that, or at least some of them.

Mr. Barbour: Is that the only complaint that you have to make, Mr. Pillsbury, in regard to co-operation or lack of co-operation?

Mr. Pillsbury: We haven't any complaint, Mr. Barbour.

455 Underground Cables.

Mr. Pillsbury: I would like to qualify that slightly. For instance, take the matter of underground cables: Mr. Almert's staff had the co-operation of the workmen of the Company, certainly, who worked directly with Mr. Almert's staff on the actual inventory. Presumably those men knew exactly what they were inventorying. To that extent naturally there would be a co-operation that we would not have.

456 Lack of Co-operation.

Mr. Barbour: Were any of the records, data, maps, papers, contracts, vouchers or memoranda of any other character in the possession of the Company refused to be placed at your disposal?

Mr. Pillsbury: Absolutely nothing of record, so far as we know, was refused us when we asked for it.

Mr. Barbour: Then the only things in which you were declined cooperation were things which lay purely in the memory of subordinate employes?

Mr. Pillsbury: Either memory—I wouldn't say exactly memory. I would say exact mental knowledge and probably private records.

Mr. Barbour: Have you any reason to suppose there were any private records which were not placed at your disposal.

Mr. Pillsbury: I have. I do not mean anything belonging to the Company whatever. I said "private records of individuals."

Mr. Barbour: What records of what individuals do you refer to?

Mr. Pillsbury: I refuse to state.

Mr. Barbour: Mr. Chairman, we ask that that question be replied to. We are being met constantly with this charge of lack of cooperation, and they are continually saying that is the excuse for the delay, and "It would have been better for you to cooperate with us."

Mr. Pillsbury: Did you cooperate?

Mr. Barbour: As far as we thought it was proper to cooperate, we did. We cooperated in every way except doing the work for you and

laying ourselves liable to the possible intimation that we were misleading you.

Mr. Pillsbury: I wish to state again, Mr. Barbour, there is no complaint in this whatsoever, and no intention of any complaint. I stated very distinctly that the Company was most courteous, and that all of its employes were likewise. We have no complaint. Personally I have always advocated cooperation and believe in it fully when it comes to matters of fact, such as an inventory. The Wisconsin Commission make almost all of their inquiries by cooperation.

Mr. Barbour: You have not answered my question, and I will *ak* the Chairman for a ruling. I will ask for a ruling of the Commission on that.

Mr. Pillsbury: It doesn't make any difference what they rule. I shall refuse to answer.

Chairman Kutz: The Commission takes the position that this question refers, apparently, to conversations or interviews between the witness and employes of the Company, and it does not pertain to the records of the Company, and is such that he does not have to answer that question.

Mr. Barbour: We save an exception to the ruling of the Commission.

457 Mr. Barbour: Were you not able, Mr. Pillsbury, from the papers, data and records which were furnished to you, to ascertain with certainty more information than any officer of the company had or could acquire?

Mr. Pillsbury: I think not.

Mr. Barbour: As a matter of fact, didn't you, from this source, acquire more information than any of them did have?

Mr. Pillsbury: I do not doubt but what we acquired, in quantity, more information from the records than any one person would hold in his memory.

Mr. Barbour: Mr. Sangster, in his testimony, and I am referring to page 420 of it, made a detailed statement showing how complete his checking of this property was and of the property owned by the Company. Did you avail yourself of that information? He said: "I had the assistance of an engineer of this Commission who visited the various substations, and informed us that these various pieces of apparatus would not be found in any of the substations. I would have you bear in mind that all of this apparatus in substations is labeled with a specific number. A manufacturer, before he ships a rotary, a converter or transformer, puts a specific number on that machine which may be referred to. If you will turn t*i* the appendix to the tables, Volume II, you will find the apparatus described in the various contracts. The shipping bill issued by the manufacturer contains the contract under which the apparatus has been purchased. It also places against each machine or panel a specific number—I think the technical name is "serial" number, which is given to the machine as its own individual label. By that means we are able to compare all the purchases with the inventory found in the records of the Company. If we could not locate the number purchased in the inventory, our engineer assistant, from his data and notes, was

able to inform us whether the machine was or was not in use or in existence."

You had those data all available, did you not, in addition to the records of the Company?

Mr. Pillsbury: We would not check our inventory by any such data as that, that is, our inventory of apparatus to which that refers was checked in the field and by a re-examination in the field. Everything of that nature which the Company had an- of which we could avail ourselves we used.

Mr. Barbour: Did you avail yourselves of Mr. Sangster's information in that regard?

Mr. Pillsbury: No, sir.

458 Cables.

Mr. Pillsbury: Mr. Sinclair himself asked how I could conceive it possible that I could determine the cable sizes merely by going out into the field and doing it. When we came to do it we think we have done it by a very laborious process. * * * We studied its transmission system, its distribution system, its mains and feeders so far as they gave us any idea as to location. We studied in the field for the purpose of separating transmission, from distribution cables and separating voltages by means of transformer taps and other information of that character. We calipered the outside of all lead-covered cables. We studied your records for years back to find from whom you had bought cables, and from every manufacturer we obtained a little sample when we needed it, as well as some samples from your stock, and ww finally made up samples of all kinds of cables, of all the different sizes of cables, so far as we could determine you had ever purchased any, and we lined them all up on boards and separated them into groups by the voltage of feeders and mains. We then compared our caliper diameter in the field with the information we could gather as to the use and voltage, and then referred to our actual illustrations of possibly the same diameters, or practically the same diameters, which might fit the case, and where there was more than one we used our judgment as to which it would logically be, all of which was a most laborious, unusual, and, I think, unnecessary method.

Mr. Barbour: That was all done, was it not, by the aid of the records of this Company?

Mr. Pillsbury: We could find very few of such value along that line. We found some maps, of course—a great many maps. We found a great deal of data, but, as I said before, the work could have been vastly simplified if we could have had cooperation from persons who knew, and we think there must have been persons who knew.

Mr. Barbour: And you decline to state who those persons were?

Mr. Pillsbury: Mr. Sinclair, I think, the superintendent—I haven't the names here before me now. This has no bearing on the formal refusal to answer. It is not pertinent to that particular division of the work. There is no connection betwen them at all. I am merely saying I am assuming the Company must have known,

because they must employ men who would be very familiar with those cable capacities and who, on cooperation, could have saved us a very great deal of time. I assume that Mr. Almert had just that cooperation.

Mr. Barbour: What would you have wished those men to do beyond giving you access to the records, data and to the physical property itself?

Mr. Pillsbury: Just go right over our inventory and discuss it with us just as the Capital Traction Company did, just as the Gas Company did, and just as the Telephone Company did.

Mr. Barbour: Wouldn't they have had to have made the inventory themselves?

Mr. Pillsbury: No, sir; I don't think so.

459 Lack of Co-operation.

Mr. Barbour: You say this work was carried out under the handicap of lack of co-operation on the part of the Company as to certain features * * * not clearly indicated by a survey in the field. What are those certain features?

Mr. Pillsbury: Cables would be one. Mr. Almert brings up the fact that there were certain hidden foundations at Fourteenth and B streets which do not show on the drawings, and certain changes were made afterwards which he had ascertained. With the Capital Traction Company we discussed all along the line all sorts of contingencies which arose, where there might be something special which would not show upon the surface, and in that case they helped us to locate it. When I say "certain features", I do not mean any particular features. I mean to exclude certain phases of the work where no cooperation is really very necessary. For instance, we would not expect to cooperate as to the amount of brick in a given building, but there could be a lot of cooperation as to the amount of steel in a steel roof truss which is completely hidden by a plastered ceiling, for illustration.

Mr. Barbour: You have made a specific reference to some work or omission discovered by Mr. Almert's staff in connection foundations. Do you know how they got that information?

Mr. Pillsbury: I do not.

460 Inventory.

Mr. Barbour: Do you know how much time was consumed in making this inventory and the estimates of the cost of reproduction?

Mr. Pillsbury: Not for the Potomac Company alone. The work was done in conjunction with all the other utilities in the District which were valued at the same time. They did not all start at exactly the same time, but they were all in progress at the same time. There were certain ones on gas who were in no way employed on Potomac, and certain ones on railways not employed on Potomac, otherwise they would be the same ones. Their work was kept separate by office system.

The witness could not say he had been allowed all the men which, in his judgment, were necessary for the proper execution of the work; he would have liked to have had more men and he thinks it would have been economical to have had more men. Does not know why he did not get them.

461 *Pillsbury's Adjustments.*

There was an item of removal of obstruction, or, rather, the cost with reference to obstruction of underground conduit. We treated our conduit system exactly as we did our track system of railways. We worked our cost of constructing under the basis of no obstructions, such as water and gas mains, etc., and estimated the latter entirely separate as to railways and set them off separately because we thought that was the better way to do. Exactly the same method was followed with the conduit through an oversight not discovered at the time, and that item was omitted. That item, including contracting percentage, was $56,965.49. That would have come under the main heading under transmission and distribution, and under underground conduits, removal of obstructions Account E-320, $56,965.49; that includes overhead—not exactly overhead, but contractor's percentage. It carries all the percentages that should be carried as far as I have gone in that summary. Our general costs have not been added in the summary. The summary carries general costs independent of the ordinarily called overhead charges, or what we would call in this report "general costs." In other words, it is engineering. Whatever engineering we allowed on this division applies to this as much as to anything else. Whatever percent existed during construction applies to this as much as to anything else. I am not certain how the total report was affected by this. This is a direct item in the summary sheet.

Mr. Barbour: That sum of $56,000 odd will increase you- final figures by $56,000 plus 19 odd percent?

Mr. Pillsbury: Exactly; yes, sir.

462 Transmission and Distribution.

Another item on transmission and distribution—our division of transmission and distribution, where we applied a contractor's percentage to cover certain unallocated or undistributed costs of the contractor and the contractor's profit, upon review I wish to increase those percentages to 17.5; the former percentage was 14. I have not the figures and have to pass that over for the present.

The witness was influenced as to the cost of reproduction or depreciation by the original cost only as original cost would serve as a basis for estimating the present cost.

The witness did give a great deal of consideration to the company's record of actual cost.

463 Depreciation.

Physical condition was merely a factor in our work. We did not depreciate by physical condition, but nevertheless, we considered physical condition, and every building was examined for the purpose of determining, within reasonable limits, the general state of or physical condition.

464 Buildings.

The practical work as to buildings was done in the field by Mr. E. G. Minder, I mean as to the detailed investigation, purely as to physical condition, which was merely one factor which we considered as to buildings. That work was done in the field by Mr. Minder. He had had a great deal of practical experience as a builder of buildings and as superintendent of construction in steel, concrete and brick buildings in Minneapolis, St. Paul, Texas, and elsewhere. His only experience in the District of Columbia was his two years observation while here. He was the head of our department of structures, inventorying buildings.

The matter of physical condition, as I have stated, was only one factor. We did not depreciate by physical condition, but strictly by expectancy of life and age. The past age should be a matter of fact and the future age was estimated "By considering the character of the building, the nature of its use, its condition, and the possible and probable causes of termination of life from economic and physical causes."

Physical deterioration was taken into account merely as having a bearing upon the remaining life. Expectancy of life is an estimate, and always must be an estimate; is never anything more. Not necessarily a worked-out result by figures but an estimate arrived at by a mental process entirely different from a guess, but a mental process which no one else can reproduce all the elements of it.

Witness did not make these depreciations but reviewed them.

Mr. Barbour: How did you review them? Do you just mean that you reviewed his guess, without the elements that made up his guess?

Mr. Pillsbury: Not at all. He submitted to me, strictly as to buildings, a complete statement with reference to the physical condition of every building, and I went over the buildings with him afterwards.

Mr. Barbour: Have you one of those statements which you can produce just to show how the thing was?

Mr. Pillsbury: Yes, I have here a purely illustrative report on the Benning Power station, that is, I mean I have it with me. It is a report to me on the Benning power station. Shall I read it? It is purely as to the physical condition at the time, which he read as follows:

"Report on physical condition of Benning power station. Con-

crete block curtain walls are sound, plumb and true to line, having only unimportant cracks. Terrazzo on ground floor of engine room is in first class condition, showing comparatively few cracks. Cement floor of ground floor in boiler room, though much worn is intact and shows comparatively few cracks. Cement floor in boiler room, though much scarred and worn, is intact, but shows pronounced deflection cracks over supporting beams. Cement floor of switchboard gallery is in first class condition, no cracks and well painted. Concrete roof slope is in good condition and shows no cracks. Mill work is sound, true, plumb and tight, well painted and in first class condition. Roofing is in first class condition. Sheet metal work the same. Structural steel is in first class condition and well painted. This building is of good, up-to-date construction, and is maintained in first class condition. Plumbing is first class. Grounds are well laid out, with cement curbings intact and in good condition, and lawn is well kept. Concrete off cold well is
465 in first class condition showing no cracks, and is of good grade, well constructed."

That is all on the Benning Power station.

Mr. Barbour: To what extent did you depreciate that building?

Mr. Pillsbury: The building was found to have an age of eight years. It was given a life of sixty-six years, which results in percent remaining of 88. That is an annual depreciation rate of 1.52 on the straight line basis. That is all the body of this report shows. Allotments to a depreciation reserve are also worked out on a four per cent sinking fund basis, but only the final result is given in the report. These data are strictly on the straight line basis. That is equivalent to $3,686.81 per year. Since eight years have elapsed, the accrued depreciation on the straight line basis is $29,106.36. Now, I will follow that along. Because that building is well constructed and maintained in a strictly first class manner, we assume it will be so maintained to the end, and so we gave it a life of sixty-six years, not for physical reasons, but strictly for economic reasons. We estimated that as the probable life of that particular power plant building at that location.

That was the entire data which the witness reviewed as to the physical condition of the building" except we went out together after this was done and look it over together. That particular physical condition merely confirmed our judgment that the building is being thoroughly maintained, and we assumed the Company would continue to so maintain it.

466 Depreciation.

Mr. Barbour: Is there any depreciation in value of that building?

Mr. Pillsbury: That all depends upon what you mean by value.

Mr. Barbour: Is there any depreciation of its usefulness?

Mr. Pillsbury: Not at all. It is as good now as the day it was built for the purpose for which it was constructed, and will render just as good service now as it would the day it was built, and will do

it for sixty-six years provided the maintenance is continued on its present basis.

The witness is not speaking of present value and the depreciation has nothing to do with the cost to reproduce it, or the value of the service it is now rendering.

Mr. Barbour: And could the Company in this instance have done anything additional to keep it in good shape?

Mr. Pillsbury: I would say they should not have done anything additionally. They were doing all the- economically should have done.

Mr. Barbour: Then how could they get the value of the property out of it if they are not entitled to a return on the cost to reproduce it new?

Mr. Pillsbury: Now, we are getting into the deep subject of depreciation and deduction of depreciation.

This straight line depreciation that we have indicated here has nothing to do with the present ability to furnish 100 per cent service. It has nothing to do with its present adaptability to the function for which the item is purchased and installed. It has only to do with the reasonable life that the item is expected to perform its function, and with the assumed refund of capital from the rate payers corresponding to our accrued depreciation.

It is merely a question of financing this depreciation that is hereafter assumed to occur. Because, take this particular building—"Benning power plant." In order to make it clearer, if we just forget this life of 66 years, and call it 40, if you can think of it as 40 for the minute, just for illustrative purposes—40 years of life. We will assume now that we had assigned a life of 40 years instead of 66 years, and we will assume that we assigned it so that you, representing the company, will agree to it. We will say that is the agreed upon age. That being the case, that building will be consumed in operation during 40 years just as surely as coal is consumed in operation in forty minutes in a furnace. In order that your investment may be kept intact, the Company in order to use that building up in a period of 40 years must collect from the rate payers either the minimum amount which will give them a new and an equivalent building at the end of 40 years, or the Company must have refunded to it each year from the rate payers' money representing the portion of its value which is consumed in its operation during the current year. For instance, if the rate payers pay back one-fortieth of the value of that building each year, then that money is being refunded to the owner, and the owner will collect rates, in my opinion, on the value less the one-fortieth, and, at the end of the
467 second year, less two-fortieths, and so on, because the money has been refunded, but if the rate payers pay a lesser amount each year, that is, not refunding any capital but merely setting up the minimum amount of money which, from financial considerations, may be considered to enable the Company to rebuild its building when the building is gone, then for all time the Company should base its rates and the rates should be based, in my opinion, on the

undepreciated part. Of course, we are just taking an illustrative case, unhampered by any considerations of law or past conditions.

If this building lasts 40 years, the rate payers refund one-fortieth each year, and that is what I call the straight line basis. They refund two and a half per cent each year in order to replace the building in 40 years. We set up here the alternative four per cent sinking fund basis. If the rate payers refunded on that four per cent sinking fund basis, that is, if the rate payers paid only rates for the purpose of renewing this building at the end of 40 years on that four per cent sinking fund basis, then they would have to pay annually to the Company one per cent or 1.5 per cent of the cost of the building, instead of two and a half per cent, and that one per cent would not constitute any refund of capital whatever because the one per cent is insufficient in itself to compensate the Company during any year for the loss in the value of that building consumed in the operations that year. But that one per cent, together with a cumulative interest at four per cent, would, at the end of the 40 years, give them back their building, and they are entitled to that.

The witness thinks if depreciation is computed on the sinking fund basis that accrued depreciation ought to be disregarded. If you were starting out with a new company, under Commission regulation, and that new company collects moneys from the rate payers only for the purpose of future renewals as necessary, and collects only the minimum amount which will accomplish the purpose, which must mean then some accretion of interest, then the company is having refunded to it nothing whatever. It is merely having its investment maintained intact, as it must be, and the rate must be based all the time on undepreciated value.

The witness draws a distinction in his own mind between a new utility starting out fresh and one that is not starting out new and fresh, and thinks that when we have a utility which has existed in the past we must make a very thorough study of all phases before we come to any conclusion as to what to do.

Mr. Barbour: Do you draw any distinction between a rate established by Congress and a Commission rate?

Mr. Pillsbury could not answer that without knowing more about the circumstances and assumed that in each case the value of the service is 100 per cent throughout, and he assumes that the value of the service to the individual customer is the same.

Mr. Barbour: Do you know of any business on earth that conducts its business on such a basis as that?

Mr. Pillsbury: I think loaning money would be conducted on exactly that basis.

Mr. Barbour: Suppose you go to a hotel that is ten years old. Do you pay a less rate according to the number of years that hotel has been located there, because it ought to have maintained a depreciation fund? You pay just the same for your room at the end of the tenth year that you do at the first year, if the hotel is properly maintained.

468 Mr. Pillsbury: That is a different matter altogether. We are dealing with a public utility.

Mr. Barbour: But is it a different matter if they are both subject to public regulation and both entitled to charge a just rate, is it a different matter?

Mr. Pillsbury: It is a different matter in the eyes of the law at the present time. The time may come when hotels will be embraced within the scope of public necessities.

Mr. Barbour: Under that system we come back to the point that no attention is paid to the fair value of the service rendered?

Mr. Pillsbury: Well, I would not say that. I assume that the service is always rendered at full value; 100 per cent value in either case.

Mr. Barbour: But the first year the rate will be higher than it will be the second year.

Mr. Pillsbury: That would only be true in the illustrative case I used or in a utility remaining always at a standstill, a utility that would just remain one size. For instance, if this was a private building and we put in a plant in this building to serve a plant across the street, and never served any other plant but that one across the street, this plant not growing at all, then it would be true that, on the straight line basis, the rate would go down hill and get less every year. On the sinking fund basis it would remain constant.

Mr. Barbour: And at the end of the period you would be receiving service for nothing.

Mr. Pillsbury: No.

Mr. Barbour: Or for very much less than it was in the beginning.

Mr. Pillsbury: Yes, but you would always be getting six, seven or eight per cent on the money not refunded.

Mr. Barbour: Yet you would be rendering the service for nothing to the public and getting an income on some money invested in something else.

The Chairman: But the average amount paid during that period would be the value.

Mr. Barbour: How are you going to get an average for people who take service during different times in your life? John Jones takes it today and John Smith takes it tomorrow. It is the same service. Are you going to credit John Smith because you charge John Jones above your average? As I understand it, this is not actual depreciation at all.

Mr. Pillsbury: It depends on what you mean by depreciation. It is not physical deterioration.

Mr. Barbour: You just assume that this building, or one like it, would last sixty-six years.

Mr. Pillsbury: We did not assume it; we estimated it. The basis of our estimation is our judgment.

Mr. Barbour: Based on what? You have never seen any building sixty-six years old.

469 Mr. Pillsbury: Oh, yes I have. Do you mean I have never seen a building sixty-six years old?

Mr. Barbour: I am talking about your experience, your observing a building sixty-six years old; I refer to a central power plant. You

have not seen how long it would last. You or no one else have seen one like it.

Mr. Pillsbury: No.

Mr. Barbour: How do you get at the idea that that building is going to last sixty-six years?

Mr. Pillsbury: We do not argue it and do not intend to argue it. That was the best of our judgment. If you were to collect money for the purpose of renewals you would have to have some judgment as to expectancy of lives of your property. We have used our best judgment. We do not expect that those lives are correct in all cases. We expect that the data is subject to modification.

Mr. Barbour: If our company guesses wrong we lose our money and if you guess wrong we lose it, and there is no way to remedy it.

Mr. Pillsbury: About that I have always said that it is a matter that should be adjusted by co-operation.

Mr. Barbour: Have you referred to any life tables for buildings or anything of that kind?

Mr. Pillsbury: Yes. We have considered many life tables, but not with much weight.

Mr. Barbour: A life table for buildings would be very useful to get the average life of a building, but it would not be worth a cent to get the life of a given building, would it?

Mr. Pillsbury: Not at all. That is why these lives vary so here.

Mr. Barbour: The very fact that it was an average would show that it was not the life of this building.

Mr. Pillsbury: Absolutely, so, yes.

The principal items of power plants have been assigned lives on the basis of economical conditions rather than on the basis of physical conditions as a main factor. Physical condition was taken into account, however.

Mr. Barbour: Just at this point, what do you mean when you say on the basis of economical condition?

Mr. Pillsbury: For instance, here are some charts that we prepared of your Benning's power plant to show when, in your judgment, you would begin to increase. We predicted the very enlargement that is now being made, as of this date, in your turbine at the Benning plant. We set it a little ahead in order to be liberal with the company. These charts indicate the increase you are now making in your Benning's power plant. These are not in the record. These are my personal property in a way. They have not been put in. These charts show the population of the District of Columbia past, and estimated future. The estimated future is not our —, but the War Department's. * * * We have had to use our
470 judgment as to what you would probably do in making certain changes in your plant and we have tried to consider the economical things to do at *this* times. It is a matter of estimate. It cannot be anything else. We think we have been fair in giving all of those items. My personal idea is that there should be co-operation on all these matters finally in fixing depreciation.

471 Obsolescence and Inadequacy.

Mr. Barbour: In this question of depreciation to what extent have you given weight to obsolescence, for instance?

Mr. Pillsbury: We have given weight to obsolescence where, in our judgment, the end of the life, that is the determination of the life, would be caused by obsolescence. But as to the Potomac Company I do not think there are many such items in its property. It is inadequacy largely. * * * By inadequacy we merely mean the state of being inadequate, a replacement, because a machine or item is too small. If you were operating in the Benning's plant, a bolted Corliss unit, we would have given it a mighty short remaining life, even though it was rendering 100 per cent service, because we would have felt that you could not afford to operate it very long economically, because of its obsolescence. We mean by that that it it not an economical unit and you could not run it very long.

Mr. Barbour: As long as a machine operates and performs a service, the service for which it was designed and purchased, would we not be entitled to as much of a return on that as we would be on a brand new machine?

Mr. Pillsbury: You are if not part of its value is being refunded by the rate payers. We are dealing in our report strictly with the refund of money and life expectancy.

472 Mr. Barbour: That is merely something in addition to the return on the investment to take care of this depreciation that you refer to, is it not?

Mr. Pillsbury: No, not if I understand your question correctly.

Mr. Barbour: That is all you are entitled to; or that is what the company is entitled to, is it not, to have this future depreciation taken care of?

Mr. Pillsbury: The Company is entitled to have its investment maintained intact, one way or the other, either by having it returned to it or having the things which it represents continued in perpetuity.

Mr. Barbour: That is merely a question for the future, is it not; a future rate? You get your return and you get enough in addition to a fair return to take care of future depreciation?

Mr. Pillsbury: But there are two ways of taking care of that.

Mr. Barbour: It is merely the method of financing it? Either one will finance it.

Mr. Pillsbury: Either one will finance it, but with injustice to the rate payers unless the rates are made commensurate with the method you adopt. The two must be handled hand in hand and made to fit together.

Mr. Barbour: Mr. Pillsbury, you have referred here to a case of a Corliss engine. You said even if it had been a brand new engine——

Mr. Pillsbury: No, I did not mean to say that. I did not mean that. I do not think I said that.

Mr. Barbour: That was the impression I got. I am not trying

to quote your exact words, and I will be very glad to have you correct me at any time, but that is the impression I got.

Mr. Pillsbury: I did not mean to say that. I did not mean that, anyway.

Mr. Barbour: But that is the idea I got. I got the impression that if the Corliss engine was brand new, or as good as brand new. that you would, without regard to its present condition, or its lapse of life, give very little expectancy of life to it, not because it would break down physically and become incapable of rendering further service but because it was not economical?

Mr. Pillsbury: Exactly so.

Mr. Barbour: That it would not pay the company to operate it any more?

Mr. Pillsbury: Yes. I spoke about this engine being in your Benning's plant, as being one of the generating units in your Benning's plant.

Mr. Barbour: How would you compensate the company for the value of that investment? How would you take care of it and how would you return it to the company?

Mr. Pillsbury: That is exactly what we are trying to do now. In estimating future lives we are trying to protect the company and maintain its investments intact. We are trying to do that by assigning lives to different things. I think I know what you are getting at. Some unforeseen condition may arise which might cause
473 the life of the machine to be shorter than could have been estimated in the beginning. Is that what you mean?

Mr. Barbour: No, sir.

Mr. Pillsbury: Then I do not understand you.

Mr. Barbour: That is what you are doing. I say that although the Company would continue to operate that machine longer than you think it could be economically operated, yet you would pay it nothing for it.

Mr. Pillsbury: Then I thought wrong. What we are trying to do is to estimate what the company really will do in such a case.

Mr. Barbour: Am I correct in this: That you think this accrued depreciation should be added to the cost of reproduction?

Mr. Pillsbury: Added?

Mr. Barbour: Yes.

Mr. Pillsbury: No, sir.

Mr. Barbour: You do not mean that?

Mr. Pillsbury: No. I do not think I have even intimated that

Mr. Barbour: Do you mean it should be deducted from the cost of reproduction?

Mr. Pillsbury: No, sir.

Mr. Barbour: Then what would you do with it? If you would not add it or would not deduct it, what would you do with it?

The Chairman: I think he has answered that question, but he may repeat it if you wish.

Mr. Pillsbury: I have stated that in a certain hypothetical case that I have mentioned I can answer exactly what I would do; but when we come to a case such as your own, I cannot answer what I

would do without having made a thorough study of many of the factors pertaining to the past history of the company, which study in this case I have not made in any way.

Mr. Barbour: You have stated that you thought that these depreciation surveys were fair to the company. I believe you stated that in response to a question, or probably you made an independent statement a few moments ago. I just want to know what you mean by that.

Mr. Pillsbury: I mean to say that we tried to look at the matter of expectancy of life from the standpoint of the company; that we tried to estimate it as though we were representing the company, is what I mean. But I still say I think those matters ought to be settled by co-operation, because they are always matters of judgment.

474 Mr. Barbour: You do not want us to believe, or this Commission to believe, that you have looked at this matter from the standpoint of the Company, do you?

Mr. Pillsbury: In the matter of determining remaining lives? Absolutely so; yes.

The Chairman: I might say that this depreciation question works both ways, so far as determining the capital on which a fair return is to be asked is concerned. In that case the company is naturally anxious that the accrued depreciation be as small as possible. When it comes to earning a return the company is anxious that the amount set aside for depreciation shall be as large as possible. That is the company's view, naturally.

Mr. Barbour: I think we are entitled to the benefit of the doubt both ways, so far as that is concerned. What we want to know is which one of those views is the view of the witness.

475 Depreciation.

Mr. Barbour: Our company has already invested on one b and the attempt is now being made to have the rates adjusted to some other basis. How, for instance, Mr. Pillsbury would you get at the life of any conduit, and apply depreciation to that conduit?

Mr. Pillsbury: That is a different matter. We got at it by judgment, based upon a study of everything I had found in the past pertaining to the subject; that is the history of companies, etc. We assigned a pretty long life to your conduits.

Mr. Barbour: Have you a memoranda there of the condition of conduits or of the depreciation study that you reviewed?

Mr. Pillsbury: The condition of conduits was noted on every field sheet of the inventory, but naturally that means but little, because there is nothing exposed about the conduits except the ends of the manholes with the exception of a few that happened to have been dug up during our work. That is a minor matter. The condition of conduits was considered absolutely and strictly first class.

The Chairman: What life did you assign to them?

Mr. Pillsbury: Seventy years. That seventy years means a weighted average for all reasons, economical reasons and otherwise.

It means a weighted average of seventy years, which means that some of these would have one hundred and fifty years possibly, and it means that some of them would have a much shorter life, because of being torn up for various reasons.

He got at this purely as a matter of judgment.

Mr. Barbour: How did you exercise the judgment when you say there is nothing to see upon which to exercise the judgment?

Mr. Pillsbury: How would the company exercise judgment when it makes repairs to a conduit? I have stated that it is purely a matter of judgment based on judgment of the changes that are made in a conduit system such as this. A much shorter life has been assigned in most appraisals, but that is of no particular significance. Washington conditions are such that lives are undoubtedly longer here. With respect to conduits than in many other cities, especially such cities as Chicago and New York, because there are so many less disturbances in the streets; because the city is so much less of an industrial city; because the streets are so wide and there are so many of them, and because it has been the practice of the company to ad- to its conduits in a different manner than is the usual practice. Instead of ripping up the conduits and replacing them, additions have been made in all sorts of forms, all of which have resulted in a longer life, in our judgment, than we would otherwise have assigned. But it is, after all, purely a matter of judgment.

Mr. Barbour: Is not the life of these conduits practically unlimited?

Mr. Pillsbury: Purely physically it is not entirely unlimited; but within reasonable limits it is. It is not so in actual practice.

Mr. Barbour: If the manhole is maintained the conduit line itself has an unlimited life, has it not?

Mr. Pillsbury: Purely physically it could be made so, but in actual practice it is not.

Mr. Barbour: What are the conditions in actual practice, to which you refer? Do you mean disturbances of the streets by other improvements?

Mr. Pillsbury: Disturbances of the streets by other improvements; changes in the duct lines for improvement—changes made by the company.

476 Mr. Barbour: Those changes are always taken care of through operating expenses, are they not?

Mr. Pillsbury: It does not make any difference to us how they are taken care of. That has no bearing on our work. We pay no attention, in our work, to where the money comes from or how the accounting is done. We are merely trying to decide how long a time, as a weighted average, these conduits will remain in existence, because you are entitled to have your investment in them protected.

By the term "weighted average," witness means that in his judgment 70 years is a fair total life for all the conduits in the system.

Some would be less and some very much longer, but as a weighted average seventy years is a fair estimate.

Mr. Barbour: Is there any depreciation of the conduits as they exist at the present time?

Mr. Pillsbury: If you mean from the standpoint of serviceability, no; not that we have measured.

Mr. Barbour: Serviceability or condition?

Mr. Pillsbury: Nothing that amounts to anything in condition.

Mr. Barbour: Has any portion of their useful life expired?

Mr. Pillsbury: Yes, if we are correct in our seventy year estimate of total life.

All of the field parties made depreciation surveys. For instance, take poles. The field sheets report whether the poles appear rotted or not. In addition to that we sent special inspectors out for no other purpose than to scrape the dirt away from the bottom of the poles to see to what extent they were cracked; to see to what extent spurs had injured the poles, and all that. That was done for the purpose of determining nothing else than the probable average life of poles here in Washington. They did not ascertain the probable life of poles. They merely ascertained whether there was any rot or not, and they actually did that with a pair of calipers. They dug the dirt out from the base of the poles, and, by means of the calipers they determined how deep the rotting was at that point, to what extent the circumferences were covered by rot. These men were perfectly capable of doing what they did. Their reports came in in the daily field sheets which went to the heads of the departments, and the general summaries of which came to me. No figures were put on those sheets except as the data helped to confirm the judgment as to the probable life of poles in the District of Columbia. It helped my judgment. Most of these matters were discussed by various of our head men. There were many matters discussed.

Mr. Barbour: What I want to get at is this, and I do not want to mislead you or confuse you. Was it your judgment that caused these figures to be put on the sheet? Was it because of your judgment that they were made up and stated, or did somebody else make them up and submit them to you for approval?

Mr. Pillsbury: As to poles, it was my judgment?

Asked as to what opportunity he had to become acquainted with the probable life of poles within the District of Columbia, he replied: "We had various reports that showed deterioration in poles. We had considerable data from the American Telephone and Telegraph Company, quite a good deal of it, data that they had accumulated, based on their own experience with the chestnut poles in the east. We used that data. We had other data, quite a little of it. We had made a survey of the poles of the District of Columbia and we had advantage of many Government records pertaining to the soils. We charted the soils.

477 Mr. Barbour: Have you any of the data that you used now available?

Mr. Pillsbury: Much of that data is in the Library of Congress.

Mr. Barbour: I am talking about the data you used.

Mr. Pillsbury: The matter of the life of poles was a matter of my own judgment, having passed through all those things.

Mr. Barbour: What I mean is there do data in the files of the Commission that you used in this report?

Mr. Pillsbury: As to the life of poles, probably not.

Mr. Barbour: It was just the result of your general studies or individual studies?

Mr. Pillsbury: Yes, sir.

Mr. Barbour: Without any data available for checking it.

Mr. Pillsbury: We had the data I spoke of, the Government records, and the data from the American Telephone and Telegraph Company, but that is not the property of the Commission.

Mr. Barbour: You cannot put your finger on the volumes and books that you read, can you?

Mr. Pillsbury: I cannot, no.

Mr. Barbour: Do you know the life of a pole in the District of Columbia?

Mr. Pillsbury: Well, the life that we have assigned is what we think is the fair life to allow. The average life of a chestnut pole is 15 years.

Mr. Barbour: Is that the average life of the poles in use, or is that the average life of all poles?

Mr. Pillsbury: That is the average life of all poles of the Potomac Company. That is the average that we assigned to them.

Mr. Barbour: The average that you assigned to a new pole?

Mr. Pillsbury: To all poles, the total life of the pole; the average for all poles.

Mr. Barbour: What was the average unexpired life of the poles?

Mr. Pillsbury: About five years, approximately. This doesn't say exactly, but it is ap-roximately five years. It was 28–100 of 15. The unexpired life is the remainder of the 100 per cent or 72 per cent is the present per cent remaining.

478 Residual Value.

He did not assign any residual value.

Mr. Barbour: By the way, I believe I noticed there in a large item that you had a residual value of $25. How do you get that? I was just a little curious to know what that was.

Mr. Pillsbury: And that is very plausible. In very many cases there was a minus quantity. In all such cases we gave the company the benefit of it and called it zero. As a matter of fact the res dual value is what the company would receive for the item at the end of its life, minus whatever it cost to get rid of the item up to the point of sale; that is, minus what it would cost to take a pole out of the ground and haul it wherever the sale is made.

Mr. Barbour: If there is a minus quantity it ought to be add d to the cost, ought it not?

Mr. Pillsbury: It would have no bearing on our cost of repr duc-

343

tion. In reality, from an accounting standpoint, as I have long contended, what the company should set aside for conduits would include the cost of removing them. That is strictly an accounting matter and has nothing to do with our work here. It is not usually so done.

Mr. Barbour: You do not know what that $25 is for?

Mr. Pillsbury: That is the total amount of poles.

Mr. Barbour: I refer to account E-319. Out of a reproduction cost of $85,408.62 you have a residual value of $25.

Mr. Pillsbury: That is merely what we are allowing for certain cast iron standards, which cost new $407, minus their cost of removal. The salvage value is a minor matter. If the whole salvage value were doubled it would not affect the total conclusions enough to be worth the time of discussion. Salvage values are low when correctly figured, on account of the excessive cost of removal and preparing for sale. The life of 15 years for poles applies to wooden poles. The life assigned to iron poles is 35 years and steel towers, 40 years; the expired life of iron poles is averaged at 4 years.

479 Depreciation.

We did not figure depreciation from the physical deterioration standpoint, but the remaining life was judged in conjunction with consideration of how property was being maintained. So far as the property of the Potomac Electric Power Company was concerned there was practically no depreciation maintained and I have so reported in writing to the Commission; very little. (But this is not stated in his report.)

Mr. Barbour: So that the only depreciation on any of the property of the Potomac Electric Power Company, taken substantially, is that you provide for under this theoretical idea of lapse of useful life?

He does not consider this theoretical. He does not mean that the lives are actual, but they have lives and that the lives constitute the reason why he must take this matter into account because the property is being consumed in operation. He thinks it very practicable.

Mr. Barbour: Is it not the same condition that you find when you come to apply life tables or annuity tables to the life of a man? It is all right as to the mass, but when you come to apply it to a single man it is absolute theory.

Mr. Pillsbury: Yes, of course.

Mr. Barbour: Any man that was living beyond the elapsed time would have a right to complain about having it applied to him, because according to the table he would have outlived his useful life.

Mr. Pillsbury: Exactly. That is why we do not apply life tables. It is a matter of judgment with each item or similar groups of items like conduits, judging them independently. I would not say that they were founded on the tables..

He would not say that either this is above the average or below the average. The tables have something to do with it. They merely help to form our judgment, that is all, on many of the things like power plants, machinery, where absolutely no attention was paid to the ordinary published tables. But he cannot say that his table there as applied to any unit of this property shows the period that it is going to last, or that it will, for that matter, last that period. "We merely say that is the best of our judgment, and we believe that the matter should be settled by cooperation, where possible."

He would not say that his judgment is based on the supposed lives, modified by the inspection of the particular pieces of property and a study of all sorts of data that might have a bearing upon life. In connection with the lives, we examined tables of lives, where we could find them.

480 Material and Labor.

(Oct. 31st.)

Referring to statement in his report that the costs of material and labor were compiled and analyzed, the witness stated that costs of material and labor were compiled from very many sources; all available sources; that the records were studied with great care from vouchers, contracts, construction records, and job cards.

Material prices were obtained from many manufacturers, from local agents and local contractors. Labor operations were studied as obtained from other sources, private records of his own, records obtained in former work of Stone & Webster Company, and a number of other large construction organizations. Records from some of his past appraisal work. All sorts of information available with reference to labor was studied. As to certain materials, the prices of which fluctuate, prices were studied not only as to the date of our valuation, but as of many past dates, average prices for a long time back, for the purpose of deriving what we considered to be a fair normal price as to each such fluctuating material as of the date of valuation, July 1, 1914.

He did not apply average prices. He applied as to certain items, the cost of which fluctuate, what he considered to be a fair normal price as of that date; not necessarily an average price, but what in his judgment was a normal price. He considered averages, however, in arriving at the normal. They took actual prices prices as of that date only as to things which did not fluctuate materially in price which were the greater proportion of the commodities, cement, brick, stone, sand. He cannot enumerate them all entering into the construction of the property. We considered a normal price as to copper, steel, iron and lead. The prices applied to cement, brick, stone, sand, and lumber were the actual prices as of July 1, 1914, from local builders. And for copper, steel, iron and lead, "We took what we considered to be normal prices. They were not average prices but were based on average prices. This is what we did: We prepared charts showing the market quotations of copper, for illustration, run-

ning back over quite a period of years. Our charts showed the actual quotations right through the period of years. In most cases it went back eight, nine or ten years. We did not use the first part of it, however, in our final conclusions. The chart showed us the actual quotations, secondly the five years averages, and third seven year averages. The seven year averages more nearly constituted what we finally adopted than the other. But we did not adopt them because they were seven year averages, but because we considered them normal. They were very close to seven year averages. The reason being that the charts indicated to us, in our judgment, that seven years as to copper and iron fairly represented a complete recurring cycle, peak and hollow. In all of these fluctuating commodities, just as in general business, we go through a succession of peaks and depressive waves. The five year average we did not consider to be as fair as something more nearly approaching the seven year average."

And having derived those prices he then applied them to the inventoried items. The inventorying was taken first in a broad way but prices were being compiled almost from the start.

In part, the same staff was engaged on two jobs at the same time although they had a separate cost analysis department, which principally compiled, that is, arranged the cost data as gathered. It was not the origination of it so much as the office arrangement of it. The costs were gathered in part by men who did nothing else whatever and in part by department heads of all departments.

The report shows how this inventory was gathered.

481 Mr. Barbour: Well, for instance the building division. That is the office building down here, for instance. How was that done?

Mr. Pillsbury: A field party was assigned to each specific building. That party came right in the building and piece-built it. That is they reduced it to its bills of material prior to that, and at the same time, but in conjunction with that work, different plans and specifications of buildings that were available for us or that we could locate or get a hold of, were studied by these men, because all of the items in a building are not in sight, that is, with regard to most buildings, and especially an office building. Many things are hidden. Where we had cooperation with certain companies we obtained information otherwise. In your case we could only locate the hidden things by our study of such plans and specifications as were available to us. By means of direct measurements taken from the building itself, in conjunction with a study of plans, bills of material were derived. In the study of the plans the building was compared with the plans. The plans were not used until they had first been checked with the building. Where the plans checked with the building and gave additional data to what was available from an examination of the building itself, then that data was used.

I can go a little further with that. We divided the building into certain main headings for purposes of inventory, such as excavations, mains, trenches, special depths, back fills, piling, stone work, and so forth, which was divided into the various classifications of stone work,

brick work, terre cotta, concrete plain, concrete reinforced, floor fill, floor finish, form work, flooring, miscellaneous carpentry, reinforced steel, structural steel, builders' steel and iron, water proofing, fire proofing, ornamental iron, metal doors and windows, metal work, roofing, sheet metal work, painting, hardware, water system, etc.

Now, in general these were the headings we started out with and what I have read would constitute a part of the instruction sheet to all field parties. Each field party was given quite an elaborate checking sheet, occupying a good many pages, enumerating a great many items that might exist in any building, each of which had to be checked by the men before they finished, to make sure that they had found such an item and excluded it, or that there was no such item. Having done all this the work was checked by another party or person.

The first party would ascertain whether there was or was not the property coming under these various classifications in a given building "by looking at the building and taking measurements. The plans were also regarded. Right at the outset, the first thing that was done was to compare the plans with the buildings where we could *could* get plans and specifications. The data was not taken from the plans until the men were satisfied that the plans and building agreed. Departure from the plans are expected.

Asked to state what effort was made to ascertain whether or not al-erations in plans and changes were made, he could only reply—"Every effort."

"All I could say is that the building was examined, the plans were examined. Since we could not ask questions from your men we had to ignore that feature of it. * * * In your case all we could do was to compare the plans and specifications such as we could find with the building and draw conclusions as best we could."

482 He did not make a request from any of the officials of the company for information as to whether the plans had or had not been departed from. He took the company at its word at the start. I appreciated the situation the company intimated to me it was in. I thought they were treating us courteously and I tried to treat them courteously. We did not continually hamper them by asking questions which we were sure would not be answered.

The company did not tell him that it would give him all the information they had.

"In most cases where we got available records we had to find those records ourselves. Also in most cases we had to ascertain what we needed before we would be assured that we would get it. In most cases we could not go to the company and ask them if they had records that showed certain things, but we would ascertain what records we thought they had and then we would go there and get them. Always courteously. I do not mean to imply too much here. I say I think I made a serious error in taking the company at its word. That the company could not cooperate except to furnish data on ownership and to give us such records as they had. We did not continually hamper them by asking specific questions for the purpose of getting them on record and I am sorry now that we did not do that.

But we did not do it and we did not do it because we were trying to be as courteous to them as they were to us. I am not saying that in a complaining way, either."

Mr. Barbour: Was not the whole attitude of the company that they did not want to be held responsible for information gotten from Tom, Dick or Harry, who might or might not have accurate information as to what was going on?

Mr. Pillsbury: Well, I do not think so at all. That was not my conclusion. I did not think that was the purpose of their attitude at the time.

The witness did not think in reference to this matter of departure from plans and specifications that he could have ascertained whether or not there had been a departure. He stated that he studied that data by reference to the amounts paid to contractors. He could not locate the departures from plans and specifications in that way. Bills would be rendered for alterations but "They are usually so specific, that they can locate the items. From an accounting standpoint, if all the records were clear that would be all right; but when you compare an inventory with an existing building it is an entirely different matter to decide about those extras from bills of contractors.

Mr. Barbour: At least you never made any application to any responsible officer of the company for detailed information as to such things?

Mr. Pillsbury: I do not remember now that we did, for the reasons that I have stated. All my men were instructed not to.

Mr. Barbour: As to all such alterations, then, or changes that were not shown in the plans themselves, you must necessarily have disregarded them in the inventory.

Mr. Pillsbury: Not at all. We did not inventory from plans. We inventoried from the building.

Mr. Barbour: I am talking about alterations that were not visible on inspection. You must necessarily have disregarded all such alterations in your estimate, must you not?

483 Mr. Pillsbury: By no means. We have taken into account all that we could find from all the records that we could find in the company's possession; that is all I can say.

He did make an analysis of the contractors' accounts but it is very difficult to draw reliable conclusions. They did make an analysis and studied all of that "but any information that the officials of the company held in their minds or in any private records we did not avail ourselves of. We did not have that. We did not in each case ask for it specifically, because we knew it would do no good.

484 Checking.

The checking was done by men at the head of departments. Their checking consisted in taking the manuscript field inventory back to the building and in a general way looking it over and drawing conclusions as to whether or not errors had been made. I do not mean to imply that the work was done all over again a second

time, by any means. If there was a difference between the two it was immediately checked up to find exactly what was right.

Mr. Barbour: Gone over a third time?

Mr. Pillsbury: Gone over a tenth time, if necessary. Whenever any discrepancy was found, or any indication of discrepancy, the matter was traced out.

Mr. Barbour: How did you go about it on the tenth time?

Mr. Pillsbury: I did not say we did. I said if necessary.

Mr. Barbour: How would it be necessary or possible under your plan?

Mr. Pillsbury: It probably would not be. * * * All I mean to imply is that we did not stop at any particular number of examinations, if there was any point in doubt.

Such discrepancies were not frequent. Undertook to do none of the checking himself but frequently went around where the men were working and see what they were doing and determine whether in his judgment they were working fairly, but he made no attempt himself to check building quantities; whether in his judgment they were working honestly or not; that is all. In a building I could see whether they were measuring with any accuracy or whether they were measuring very roughly. He cannot tell how much time he devoted to that kind of business; has no idea. He was not assuming direct responsibility for the number of bricks that any man might find in a given wall.

Mr. Barbour: It was necessarily very superficial, was it not?

Mr. Pillsbury: Well, it was only supposed to be, so far as my checking up building quantities was concerned. It could not be otherwise, except that I tried to satisfy myself at all times as to the accuracy of the staff.

So far as the accuracy of these figures given in his report were concerned, he was relying entirely upon the accuracy of his men and if they have gone wrong he has gone wrong, and he does not know how it could have been otherwise and the plan that he adopted necessarily contemplated supervision of inventory details.

185 Depreciation of Buildings.

Depreciation was applied to buildings as a whole and not to material or different kinds of material in the building since depreciation consisted of nothing whatever but the matter of age and life of the building as a whole for its present use or function, and that it was likewise done through subordinates; and his report shows what was thereafter done.

Pages 8 and 9 of his Basis and Conclusions set that out as follows:

"5th.—Costs of materials and labor were compiled and analyzed.

"6th.—Costs of apparatus, materials, labor, etc. were applied to the inventory items.

"7th.—Contractors percentage was added to totals or groups of costs when such items were considered as installed by a contractor.

"8th.—All items of inventory, priced as above, were depreciated by deriving and deducting accrued depreciation to date.

"9th.—To the total base costs as above, certain proper and necessary general costs of the owner (overhead charges) were added."

486 Contractors' Percentages.

He stated that he did have a rule which governed him in determining whether a given item was installed by a contractor or not, which is stated as follows at the top of page 18 of the basis and conclusions; which the witness read as follows:

"By cost of reproduction or reproduction cost, is herein meant the estimated normal cost to acquire the land and reproduce substantially the identical used and useful physical property as of July 1, 1914, as a continuous process in the most efficient humanly practicable manner, under the hypothetical condition that the present property is not existent except for the purpose of inventory now. Following that theory, which is strictly that of a hypothetical construction, as a continuous process in a wholesale manner, in the most efficiently humanly practicable method, it was necessary to conceive of a logical method of reproduction."

Mr. Barbour: That is just what I want you to state—what that method was.

Mr. Pillsbury: We assumed this: We assumed that the company itself would be organized and maintain an organization, somewhat prior to and during the construction. Such of the costs of that organization as in our opinion which pertained to construction we have included, not however, in the contractor's percentage. It is assumed that consulting engineers would be employed; that they would prepare plans and specifications for and in a general way supervise the installation of the physical property, with the exception of service and meters. Service and meters were assumed to be installed directly by the company.

As to buildings, we assumed that the engineers would prepare plans and specifications for each building, receive bids and assist the company in the compilation of the bids, and make recommendations as to awards, and assist the attorneys of the company in preparing contracts, and inspect the building during construction. We assumed that the buildings would be contracted to a contractor, all buildings to one contractor.

As to transmission and distribution we assumed, likewise, that plans and specifications would be prepared and bids received on the company's cost plus fixed sum percentage basis. We did not assume the contract would be given to a contractor for the entire transmission and distribution in a lump sum. We assumed that the plans and specifications would be *a* developed somewhat during construction period; that all of that work would be installed by contractors, with the exception of services and meters; that the contractor would not, however, buy all of the material. We assumed that the company, having its own organization, including its own

engineers, and having consulting engineers, would buy the heavy material, such as all lead, copper, conduits, poles, transformers, wire and other heavy material. We did that because that is a logical assumption, in my mind. The company could buy it as cheaply as a contractor, and there would be no particular object in not buying it in that way. We assumed that the contractors would buy all small material, in fact more than that, he would buy a good deal of material, but not the heavy items we have just spoken of; that he would furnish an organization and install the work.

As to power plants and substation, we did not assume that the work would be done by contractors. We assumed that the consulting engineers, in preparing their plans, as I have stated, would award contracts, not for the building as a whole, but for the boilers erected by the boiler company for the turbines erected by the General Electric Company, and considered switchboards as a part of the contract with the General Electric Company, and so on. In other words where general electric apparatus is installed, in power plants and substations, we assumed that the General Electric Company would contract for the whole thing installed, and so on right down the line. Certain small items we assumed would be done by men hired by the company under the general direction of the consulting engineers. We had no contract for the power plants under our assumption, except the building. Materials and supplies we assumed would be purchased by the company."

487 But on page 2014 of the transcript he said "There is no governing rule. It is a hypothetical case, or what we considered to be a hypothetical case. The paragraph I have just read is my conception of it in this case.

He just went through the whole list and exercised his independent judgment as to which he would allow to a contractor and which he would not.

"I exercised my judgment as to what would be the normal method were a property like this one really being reproduced in a three year period; just how the company, in my judgment, would go at the problem in order to reproduce it in the most efficient and economical manner.

Mr. Barbour: There is no rule that you can show which was applied?

Mr. Pillsbury: Not unless what I have stated was a rule. That was formulated into a rule for our department, and governed the work. The departments were all informed.

Mr. Barbour: That rule would be as varying as you had controlling heads of a corporation?

Mr. Pillsbury: I do not understand you.

Mr. Barbour: That rule would vary with the judgment of every man who was at the head of the corporation, as to how he would have thought it best to proceed with the organization of the company and the construction of its plant.

Mr. Pillsbury: Of course that is subject to varying interpretations and judgments. I do not know that it would vary with everyone, but it would vary more or less.

The Chairman: That is the method which represents your dea of the most economical and advantageous method of reproducing this property?

Mr. Pillsbury: Exactly so, as a continuous process under the most efficient humanly practical method. That is what we were trying to arrive at and that is my basis for it. This is a hypothetical case and only intended to be hypothetical.

Mr. Barbour: Yet it is a hypothesis that never could exist and never did exist in the history of the world.

Mr. Pillsbury: I do not think that has anything to do with it. This company was not the growth of any such hypothesis, not at all. The contractor's percentage not only covers his costs but also his profits.

Mr. Barbour: After that was added would you depreciate at that stage, or would you go further and would the general cost come in ahead of depreciation?

Mr. Pillsbury: No. We would depreciate at that stage, so far as costs are concerned, but not at that stage of our work. Depreciation percentage would be applied to the total independent of the final general cost.

The structures were supposed to be awarded to one contractor.

It was not a constant percentage but varied with the different characters of work.

As to buildings, he included in his contractors' percentage a constant of 6 per cent for contractors' organization expenses, made up of quite a large number of items, stated as follows:

General foremen .54 of one per cent; resident engineer .34 of one per cent; time keepers, material clerks, .81 of one per cent; watchmen and waterboys .47 of one per cent; job office, a shack at the building. .12 of one per cent; material platforms, .09 of one per cent, machine and blacksmith shop, tool shop, .15 of one per cent; temporary ware house, .07 of one per cent; construction superintendent, .74 of one per cent; general office rent and expenses, .20 of one per cent; purchases, .62 of one per cent; accounting .29 of one per cent; es-
488 timates and costs, .30 of one per cent; automobile service .25 of one per cent; insurance on office .01 of one per cent; accident damages not covered by accident and liability insurance, .11 of one per cent; and various other percentages making a total of 6 per cent.

Then they allowed in this contractors' percentage a certain profit of 10 per cent on all work shown to have been done by the contractor, and 5 per cent profit on work installed complete as we assumed would be subcontracted by him to subcontractors, the unit prices being subcontractors' prices for the thing installed complete.

Then they allowed the contractor a varying percentage, always based on these factors but the result varying a little, because of the varying quantities of those parts of the work which we assumed to be done by subcontractors. It is calculated on the gross cost of the building, but it is 10 per cent of certain items of gross cost and 5 per cent of certain items of gross cost.

The work done by the general contractor he assumed was all exca-

vation. The general contractor himself does all excavation, back fill, brick work, terra cotta, concrete, etc., all of which items are in the report. In some of the buildings the subcontract work is exceedingly slight and in some it is heavy.

The subcontractors' profit is in his unit prices.

He made no provisions for subcontractors' profits outside of that. The subcontractors supply everything.

The detail is given on Summary sheet 58, volume 1.

489 Contingencies.

In contingencies he includes everything in the nature of a contingency that might arise, whether he thinks of it or not.

He assumed the cost wherever contracts are awarded; but you depart from the cost plus fixed sum when you get to the subcontractor?

Mr. Pillsbury: Whatever alterations were made we assume that the owners paid for.

He means that that sort of contingency is included.

Their own organization is not included.

This is merely a percentage which was applied to cover such things. We might omit from the inventory something because it was a contingency.

490 General Equipment.

Mr. Barbour: If structures is 3 per cent, plant and equipment 2 per cent, transmission and distribution 3 per cent, services 3 per cent, meters, 1 per cent, paving 2 per cent, and general equipment 5 per cent, do you carry that ½ per cent approximately through all of them?

Mr. Pillsbury: Not by any means. General equipment is wholly omissions from inventory.

Mr. Barbour: Would you carry it through one sixth of the percentage?

Mr. Pillsbury: By no means——

Mr. Barbour: It is not constant?

Mr. Pillsbury: Not at all. General equipment is an item concerning almost wholly omissions, and practically nothing for contingencies. The reason for that is that it is practically impossble to inventory general equipment without cooperation. Mr. Almert so states in a letter to the Commission. He states that the general equipment was done accurately by him because it was done by the men in the field. Ours could not be so done. We felt sure we had omitted some items, and that is why we made that five.

Mr. Barbour: With plant and equipment you do say that omissions and contingencies compare relatively there. You gave us an aggregate of two per cent.

Mr. Pillsbury: My idea of plant and equipment was that we had omitted nothing.

Mr. Barbour: As to transmission and distribution.

Mr. Pillsbury: Transmission and distribution was intended to be principally contingencies.

Mr. Barbour: No omissions?

Mr. Pillsbury: Some omissions.

Mr. Barbour: How much in the aggregate?

Mr. Pillsbury: As I say, I do not think a dividing line could exactly be drawn because omissions are apt to be contingencies. But if I should have to make a separation I would place it about the same as structures.

Mr. Barbour: One half of one per cent——

Mr. Pillsbury: For omissions, and 2½ per cent for contingencies.

Mr. Barbour: What about services?

Mr. Pillsbury: Service is just the same.

Mr. Barbour: And meters, one per cent. How about that?

Mr. Pillsbury: Meters is practically wholly a matter of contingencies.

Mr. Barbour: Paving, two per cent.

Mr. Pillsbury: Paving is practically wholly a matter of omission, or nearly wholly a matter of omission.

491 Mr. Barbour: General equipment is a matter of omission.

Mr. Pillsbury: I have stated that is practically wholly a matter of omission.

492 Legal and Organization Expense.

This was not derived by applying any percentage. It was derived by estimating a total lump sum, and that lump sum was distributed as a uniform percentage. By lump sum I mean $275,000.

There is no detail for it in his report but is as follows: Legal and organization expense estimated to be incurred by the Potomac Electric Power Company in connection with the reproduction of its physical property covers, as to legal and organization expense a period of three and a half years. The company is assumed to be organized for construction six months before the three year period of actual construction begins. During the first six months the preliminary surveys are made and a general scheme agreed upon, consulting engineers engaged to prepare detailed plans and specifications. The fees of consulting engineers are not included here, as they constitute general cost or overhead charge entitled "engineering and superintendence, Interstate Commerce Commission Classification Account E-334." Only organization and legal expenses directly chargeable to construction are included.

He reads this from a book not a part of his report "All costs and proportionate costs pertaining to promotion of the enterprise, surveys, reports with reference to revenue to be derived, and solicitations and promotion of business are excluded here, as these costs are to be treated independently of cost of reproduction of physical property." I mean that in accordance with my instructions, as previously stated. these costs are not included. Now, we have directors' meetings, $3,600; president, proportional salary charged to construction annually, $10,000 a year for three years, $30,000. I will state here

that while we assume a 3½ year period during which this organization exists, we charge a weighted average of three years to construction because we assume that at the beginning of the third year the plant is up and during the third year they are constructing and operating both; that those men then, from that time, devote a large part of their time to operation. We have taken an equated or weighted average period of three years, and during the equated period of three years some of the higher officers, in my judgment, would be devoting their energies very successfully to matters which I was instructed to exclude, in construction.

General manager and auditor $5,500, charged to construction for three years, $19,500.

Secretary-treasurer, charged to construction for three years, at $4,000 per year, $12,000.

Bookkeeper $1,800, for three years, $5,400.

Assistant Bookkeeper, $1,200, for three years, $3,600.

First bookkeeper $1,800, three years $5,400.

Second bookkeeper $3,600.

Three clerks at $1,200, $1,020 and $900, or $3,120, three years $9,360.

Two stenographers with that particular staff, chargeable to construction at $1,800 for the two, three years $5,400.

One messenger at $500, three years $1,500.

Chief engineer and general superintendent, $10,000 per year, three years, $30,000.

Two assistant engineers at a total of $6,000 a year, three years, $18,000.

One draftsman at $1,200 per year, three years $3,600. We assume that the principal drafting would be done by consulting engineers, this merely referring to incidental suggestions, and so forth.

493 Two clerks with that staff at $1,800, three years, $5,400.

One additional stenographer at $900, three years $2,700.

Superintendent of meter department, $2,400 per year, two years $4,800.

Assistant superintendent of meter department, $1,500 per year, two years $3,000. We are assuming two years now for the meters and service, because we estimate that meters and service are installed toward the latter part of the work so as to give an equated average of two years.

Engineer of service, $1,800, two years $3,600.

Assistant engineer, $1,200, two years $2,400.

Automobile expense, $7,500.

Office rent. In office rent we assume that the company rents offices for one year only. We then assume that it moves into its own building. I should have said a year and a half; that it moves into its own building at the end of a year and a half. After that of course it has to maintain the building, so we have charged something on account of that. We have a total of $6,000 for rent chargeable to construction. A part of the rent we assume chargeable to operation or promotion of business.

Office furniture $1,500, which does not mean the purchase of it, but means the proportional usage chargeable to construction, during the construction period.

Office supplies, stationery, incidental traveling and miscellaneous expenses, $15,068.

Incorporation fees, $2,400.

Preliminary construction reports $4,000. That means that proportion of the cost of preliminary surveys reports of which are strictly chargeable to construction, eliminating that proportion which would have anything to do with determining whether the property would be a paying one in this particular place or not, and all that sort of thing, which we consider should come under a head excluded by us.

District permits and inspection service, that is, inspection with respect to the service which the company installs, $8,672.

Legal expenses chargeable to construction only, $65,000.

Total, $275,000.

This estimate for legal expenses is purely an estimate, but he consulted with his attorneys in Minneapolis and various reports with regard to fees. The cost of printing stock, bonds and securities is not included because he thinks that has nothing to do with construction, under his instructions. He does not mean necessarily that that be excluded at all, but that they were excluded from his part of the work.

Mr. Barbour: Do you think they should be excluded?

Mr. Pillsbury: I think they must be taken care of in some way or other.

The legal services include everything that pertains strictly to construction, recommendations made to the Company with respect to anything that pertains to construction, retainer fee or salary of the lawyers, the preparation of all contracts, or handling any controversies that may exist in connection with any contractor, any material man, or anyone else.

They do not include any expenses in connection with chartering, organization or consolidation of constituent companies.

Nothing in reference to financing.

Nothing in regard to promotion.

They do include the passing of titles on real estate and things of that kind.

While he has applied them as a uniform percentage, the fact that he has applied them as a uniform percentage to all these buildings in no way affects the total.

Interest during construction is allowed on this total.

494 Engineering and Superintendence.

Engineering and Superintendence is allowed as follows:

For structures we allowed 5%;

On land 5/10 of one per cent.

The 5% is supposed to be the fee of the architect or whoever is employed to design the office building; he allowed 5% though he knows that the Architects' Institute have a rate of 6% "because the architects do not usually get it. They have not gotten it in Washington as a rule. I simply allowed what I thought was a fair average of what they have been receiving here. The power plant and substations were designed by engineers and not architects.

The witness allowed, also, 5% for engineering and superintendence on plant equipment, 5% on transmission and distribution, and the same percentage on all of the first four substations.

"I will state now that one of these items I intended to modify slightly. * * * The engineering on plant equipment," after a full review, I think is a little low." But he will state this a little bit later during the hearing.

Asked to state a little more in detail what services were covered by this percentage, Mr. Pillsbury, said: "As to the office building, we assumed there the architect would perform the normal functions of an architect, prepare plans and superintend the construction; nothing else.

In our legal and organization we have a company staff, an engineer and two assistants, who we expect would give a great deal of attention to the building or buildings as well as to plant and equipment, and, in a general way, also seeing that the plans are properly carried out, but not any minor detail.

In the case of office building, he assumed that the architect would take the place of the engineers. All substations he assumed to be designed by the engineers and there were no architects' fees included for them at all except as an engineer usually has or naturally has architectural draftsmen in his employ but there is no additional provision. He does not think it usual in such cases to have an engineer outline the requirements that are to be met rather than for the architect to design the buildings, and said: "Stone & Webster, J. G. White & Company, and any number of engineers, entirely dispense with the services of architects and designers either permanently or as their services may be necessary as a salary basis." He does not consider the office building as a problem such as should be presented to the engineers designing plants and substations. He thinks all the other buildings are strictly engineering problems, with architecture as a minor matter.

He allows 1.5% for engineering and superintendence on "Service and Meters" and said that applies there to something somewhat different. It might have been better perhaps if he had put zero there and increased legal and organization expense, because what is referred to there is engineering with respect to service and meters performed on the part of the Company, but not included in the organization expense which he gave. He gave a superintendent in charge of meters, for illustration who must have a staff. He gave an engineer of services who must have a draftsman, but he did not include them in the organization. Expressly excluded them in order that he might show all the detailed engineering applied to those di-

495 visions. He did not assume that consulting engineers were engaged upon the work of meters and service.

The totals to which these percentages apply are given on the same sheet, the third from the last, page 58.

Omissions and contingencies apply to the base only; legal and organization expenses apply to the base only; engineering and superintendence apply to the base plus "A."

On general equipment, one per cent is allowed for engineering and superintendence not included in legal and organization. Some of that general equipment is laboratory equipment, tools, shop machinery, and such things as that, all of which involves some engineering, but we did not assume it was consulting engineering.

On insurance on land during construction 2.10 of one per cent is allowed which is title insurance; and on structures, one per cent; that is fire insurance during construction and is a weighted average considering the period of time the building had been built, and the fact that as soon as a building is built it is put to use.

496 Insurance.

Accident insurance all the way through is carried in to the unit cost.

The same is true of fidelity insurance.

And on plant equipment has allowed insurance on transit in unit cost of plant equipment. A turbine in transit is assumed to be insured in transit and is added to the cost. General equipment is 5/100 of one per cent. That is insurance after the apparatus arrives at the plant during a little interval of time before it is put to use. The minute it is put to use we assume it is charged to operation. The 5/100 of one per cent for general equipment is the same way.

497 Interest During Construction.

He has applied a weighted average of 7% all the way through.

As to interest during construction, a three-year period of construction is assumed, with operation begun at the close of the second year. Money is assumed to be expended uniformly throughout the period, one-third each year, or the equivalent of one-thirty-sixth of the total each month. Interest at the rate of 6 per cent per assum is paid on all money received. The funds necessary for the construction in any year are assumed to be received and placed in the bank at the beginning of that year, and the bank is assumed to pay 2 per cent interest on unexpended balance, which was assumed to be equivalent to one-half of the amounts deposited each year. The bank is assumed to pay 2 per cent interest on unexpended balance, which was assumed to be equivalent to one-half of the amounts deposited each year. Interest first year, 6 per cent on funds received, less one per cent paid by the bank, or the equivalent of 5 per cent interest on one-third of the money expended. Interest second year, 6 per cent on funds received, less one per cent paid by the bank; or 5 per cent interest on one-third of the expenditures. That is the second year's

expenditures, also full 6 per cent interest on all funds received and expended during the first year, or an equivalent of 11 per cent interest actually paid during the second year. Interest third year. The plant is placed in operation at the beginning of the third year, and all interest charges on funds already invested in the property and put to service are properly chargeable to operating expense, and are not to be included in the capital account. Six per cent on all funds received, less one per cent paid by the bank, or 5 per cent interest on one-third of the expenditures. Adding the interest on the various thirds for the three years we have 21 per cent for one year, or one-third of the total expenditures, made up of 5 per cent first year, 11 per cent second year, and 5 per cent third year, equivalent to 7 per cent interest on the total for one year.

He has not undertaken to analyze his expenditures or to find out how much proportionately each year had been spent. He assumed land would be purchased very close to the beginning of operations, and has assumed a general, logical order.

He has allowed no interest during the third year on the second year's construction because he assumed that the property is put to use the third year. All of the second year's construction is not completed at the end of the second year but he has taken the equivalent of it but has not made any allowance during that time for it. He has assumed that one-third of the property would be put to use in the third year, or, rather, I will not state that exactly. I have taken as a basis this equated average which I have spoken of. If he had taken all of the property erected in the two years at 6 per cent, with no interest from the bank, and the equated average period, he would have had 6 per cent on the total. This is not intended to represent a hard and fast distribution of moneys, but merely a fair equivalent.

Mr. Barbour: You mean you approve of the result, although the process by which the result is arrived at might not
498 appear just on its face?

Mr. Pillsbury: I mean this, by assuming just how the property would be built and the money received, I can get a total interest charge considerably less than this, or I can get it somewhat higher. I think this is a fair assumption.

499 General Costs.

Mr. Barbour: Have you included in this all of the general costs which, in your judgment, should be included in arriving at or ascertaining the cost of reproducing such *as* property as this?

Mr. Pillsbury: Not such a property as this, but the physical property which we were to determine the reproduction cost of, as already defined.

Mr. Barbour: And they are not included because they were not within the scope of your employment?

Mr. Pillsbury: Exactly so; yes, sir.

Mr. Barbour: Can you state what those additional general costs are, in your own way, which should be included?

Mr. Pillsbury: No, sir; except by referring to what is stated in the

"Basis and conclusions" that certain things are not included which appear on page 30 of "Basis and Conclusions," in the first part of Volume 1, which means anything pertaining to that list of items set forth there. I mean Interstate Commerce Commission Account E-301 includes certain things which I have included here.

The witness stated if there are items under these omitted accounts which should be properly included, he could not say whether they should carry overheads because he had not analyzed those accounts for this specific case. Whether they carry overheads or not would depend on how they are set up to start with. Overheads is only a general term. An appraisal could be made without any at all. I might include all of those items in unit cost, in which case I would have the same result, and there would not be any overheads added. This is often done in an appraisal for the sake of getting the costs down.

In reading Account E-301 Organization, which includes all fees paid to governments for the privilege of incorporation, Mr. Pillsbury said he had included the incorporation fees but that he had not included the following: "And all office and other expenditures incident to organizing the corporation or other enterprise and putting it in readiness to do business. This includes cost of preparing and distributing prospectuses"; "cost of soliciting subscriptions for stock"; "loans for the purchase of bonds or other evidences of indebtedness"; "fees paid to promoters and the counsel's fees have been included only as to construction work; neither had he included "cost of preparing and issuing certificates of stock," "and similar costs" and Account E-302 which provides that it shall include the amount actually paid to the Government as the consideration for the grant of the franchise or right as is necessary for the conduct of the corporation's electric operations; and that any excess of the amount actually paid by the corporation over the amount specified in the statute should be charged to Account E-304, "other intangible electric capital;" that he had included no patent rights because that was excluded from his work as a matter to be taken up by Dr. Bemis. He had also excluded all expenditures, which would be included under Account E-304, "Other intangible electric capital," which includes the cost of all other property coming within the definition of intangible capital and devoted to electric operations. He had also excluded everything that came under Account E-340, "The cost of the corporation's interests in land (exclusive of improvements thereon) devoted to operations other than electric or gas." All of Account E-341, "Franchises in other departments" which includes the amount, exclusive of any tax or annual charge actually paid to the Government as a consideration for the grant of such franchise or right; and Accounts E-343 and E-344 and some other things stated below there on that page, namely all property located without the District limits. He excluded the latter in accordance with his interpretation of his instructions because those items of property were for use without the District. If they are capable of use within the District they should be included. Some of them may need a little adjustment perhaps.

500 Graceland Cemetery.

Was excluded because it was properly assignable to I. C. C. Account E-340, and because he thought the matter should be taken up by the Commission. He had no statement from the Company as to what they intended to use that for. He could not see any usefulness in it. For the same reason as before stated, in order to be as courteous to the company as they were to us, they refrained from bothering the company with unnecessary questions.

Mr. Barbour: If you wanted to be so extremely courteous, might you not have left out this reference to their discourtesy from that report, and the constant reiteration of it during the course of your evidence?

Mr. Pillsbury: I don't think I have. I think I have stated clearly throughout my evidence that the Company and every employe was most extraordinarily courteous all the time. I thought that was strictly a matter of policy, and I did not have any ill-will toward the Company on account of it. I thought it was strictly a matter of policy, and we respected the policy, or we tried to. I don't think it is good policy, but that is another matter.

501 Materials and Supplies.

Materials and supplies we found practically impossible to inventory without Company cooperation, that is, with any degree of accuracy, so we simply resorted to the books and records of the Company, and through the accounting staff ascertained what the Company's books showed that they had, and allowed it in full.

The inventory was based on figures taken on the first of the year but assumed that was a normal amount. He considered what the books had shown at various times, and that was taken as a fair and normal amount which, if not right, is subject to some adjustment.

502 Working Capital.

How he arrived at that is stated bottom page 31 "Basis and Conclusions". One-eighth of the annual operating expenses, real property and taxes as of July 1, 1914, plus an additional amount for property extensions. The operating expenses from the Company's reports were $873,261.32, plus real property and taxes $18,449.51, a total of $891,710.83. One-eighth of that amount is $111,464.00 to which he added arbitrarily the sum of $23,536.00 to provide for extensions, making a total of $135,000 working capital.

The working capital is supposed to provide a revolving fund from which to meet current monthly expenses without having to wait for collections.

He took one-eighth of the operating expenses because it was his judgment that one and one-half months' normal operating costs, plus an additional amount which he has allowed for extensions, was

ample for the purpose after all materials and supplies on hand are allowed for.

The allowance for extensions—$23,536—is for no particular period of time but is based on a study of cost extensions. It is an arbitrary amount, in his judgment, was proper to add.

He does not know what the extensions of the company have been for given years. He does not know what relation that sum of $23,536 bears to those expenditures, purely arbitrary.

The whole matter is a revolving fund, and is to meet two things, current operating expenses and unusual expenses. He does not mean "unusual" exactly, but means other than the current operating expenses. Construction is the principal item, and there are certain costs in connection with construction which have to be met promptly. That includes bills discounted etc. He admitted that the Potomac Electric Power Company is engaged practically all the time in extension work. "It doesn't pay for all the extension the minute the items are bought but pays for its labor promptly. It has to be very sure where the Company's money is coming from before it engages in extension work" but the witness thought that this was covered by the blanket mortgage. He does not know whether bonds have to be issued. He admits that the bonds have to be approved by the Commission.

Mr. Barbour: Suppose action on those is suspended by the Commission: What will it do in the meantime about extensions?

Mr. Pillsbury: Some of them, I suppose, have to be made. And in his judgment this amount of $23,536 would be sufficient.

Mr. Barbour: When you made that estimate were you aware that there was an application for several hundred thousand dollars' worth of bonds to cover work already done, which application was held up and suspended by the Commission?

Mr. Pillsbury: I don't think I was.

Mr. Barbour: If that fact had been known to you would you still say that $23,536 was sufficient to cover such contingencies?

Mr. Pillsbury: I would not answer that question without looking into it. This was not working capital as to any particular time. I mean to say this is supposed to represent a normal working capital as of that time, and not for some particular contingency which may have existed just at that time.

503 Mr. Barbour: Suppose the normal extension of the Company annually is six times that amount, or even in excess of six times that amount, would you still say that that amount of $23,536 was enough?

Mr. Pillsbury: That was all taken into account. That was my judgment that the sum of materials, supplies and working capital as given here was fair, and I haven't any other data now upon which to change that judgment.

Mr. Barbour: I want to get what data you based it on.

Mr. Pillsbury: I have told you, and that is everything I can tell you, and if you were to ask me a thousand questions more I could not tell you anything more than I have already told you. I cannot

say anything more than I have as to that $23,536. It was purely arbitrary, and not based upon any mathematical formula and is not based on any idea now present in his mind as to what has been the usual annual expenditures by this Company for extensions. It is so long since he has looked at any of that data that he hasn't any recollection of it with so much on his mind. He disposed of it when he looked at it and probably forgot it two weeks later.

He made no investigation of the accounts and records of the company to ascertain in actual practice how much working capital they would have carried. Thinks it would have been of assistance to him and if he had to do that work over again he might pursue that course.

The Company must have a balance at all times in addition to the bare amount of money necessary to meet these expenditures.

He does not know now and cannot state any relation between the average amount of extensions and the $23,536 which he allowed for it or the proper relations that one bears to the other.

504 General Method of Procedure.

He cannot state with any accuracy how much of his time, as well as that of his staff, was devoted exclusively to the estimation of the cost of reproducing the property of the Potomac Electric Power Company, although he thinks he could guess at it fairly closely and compute it with reasonable accuracy and promised to do so with the Commission's consent to which Chairman Kutz said: "The Commission will take that matter under consideration.

He showed also that at the same time he was estimating the cost of reproducing the Potomac Electric Power Company property he was doing the same thing with respect to the Washington Railway & Electric Company, Georgetown & Tennallytown, City & Suburban, Capital Traction Company, Washington Gas Light Company, Georgetown Gas Light Company, and to some extent, the Chesapeake & Potomac Telephone Company at various periods, all of which work ran nearly two years, and to which he devoted two-thirds of his time.

Mr. Barbour: What else were you doing outside of that, I mean in the way of valuation work or work of this character?

Mr. Pillsbury: Strictly work of this character, and aside from a few minor reports for some investers and trust companies out West, I was only engaged in Detroit and some work at Philadelphia. The Detroit work being and the Philadelphia work being merely and strictly a preliminary, short cut, rough estimation of reproduction cost of the Philadelphia Electric Company.

505 Land.

"By order of the Commission land was appraised by the District assessor and his assistants, the amount appraised in each case to represent the normal price such as, in the opinion of the assessor, would

be paid by a willing buyer to a willing seller in a bona fide sale," which the witness stated would represent the amount of money the seller would receive for the land, but does not in any way provide for the cost of acquisition and such costs are provided for nowhere else. He thinks that the cost of acquisition should be considered. It was not his purpose to allow anything additional for the fact that the corporation was compelled to buy.

Mr. Barbour: Is not that the situation with which a corporation such as this would be confronted?

Mr. Pillsbury: It might be, but that was a matter which I was not to take into consideration. That was a matter which was discussed with Dr. Bemis.

Mr. Barbour: And you were limited; that is, you were forbidden to take that into consideration?

Mr. Pillsbury: No, sir. I was instructed to take the price of land as appraised by the assessor.

Mr. Barbour: As an engineer is it not your opinion that that is a matter to which weight should be given?

Mr. Pillsbury: I think all those matters should be considered in order to decide what disposal should be made of them.

Mr. Barbour: Don't you know, as a matter of fact, that the corporation, having reference, now, to a service it has to render, is not at liberty to buy a piece of property anywhere it can, or at a price to suit it. Is it not limited to certain locations?

Mr. Pillsbury: Within limits, yes.

Mr. Barbour: And it cannot occupy and does not occupy the position of a willing buyer seeking a willing seller, can it?

Mr. Pillsbury: I would not say that it cannot. We are assuming a new company being organized here. We are assuming land purchased in the beginning of the construction period, and we are assuming it purchased at the normal sale price of the land. I can conceive of various contingencies which might arise in such a case. The property has to be conceived in advance. And the Company's power stations and substations located within prescribed limits, in order to permit it to render its service, and within certain prescribed limits it is bound to secure its location within those limits. But it is not free to go out and buy because it needs 20,000 feet of land, that 20,000 feet of land located anywhere, because it did not answer its purposes and having located the land and planned its layout, it is necessary for it to acquire land, for its substations and power stations, that will comply with those requirements and with the plans and specifications within certain limits, and that this would necessarily have an effect on values of real estate. If its purpose were known in advance or if its purposes were made known in advance. This purports to set forth, however the normal market price uninfluenced by any such considerations. But in reproducing this property those influences would come into play normally unless precautions
506 were exercised to prevent them.

The witness has not had enough experience with such properties to know what amount, if any, over a normal price a corpora-

tion would have to pay; he does not know that it would have to pay any. He can easily conceive that under some conditions it might. That is a matter which he should have stated at the outset and did not because he was wholly relying on his memory none of these instructions being in writing and that he should have mentioned that together with two or three other items upon which he had explicit instructions which he has already mentioned. He refers to the valuation of the physical property only, within the District of Columbia only, used and useful only, eliminating all intangibles and eliminating everything pertaining to cost of financing or promoting, which some consider intangible and some otherwise. He refers to just the things he has already mentioned explicitly. He merely wishes to state that he forgot completely the matter of lands. He has already stated that matter, however, on direct examination. He was instructed definitely on land.

"Any way I was definitely instructed on land and did not appraise the land, and that does not take into account either the additional cost of condemnation necessary."

Mr. Barbour: You have no information or experience that would lead you to believe that corporations, such as this is, would have to pay 25 to 200 per cent additional?

Mr. Pillsbury: I think usually corporations such as this now existing would have to use considerable precaution in the matter in order not to be held up on such purchases. I think very often such corporations are. The only way they can help themselves from being held up is by purchasing through a third party.

He has made no allowance for rights of way and if they are existent they should be allowed for.

Mr. Syme: In constructing this hypothetical plant, with reference to rights of way, if the right of way to the use of the public streets to place conduits and cables, was given freely by Congress, without compensation, then you would not consider that an item of cost?

Mr. Pillsbury: I would not consider anything that would be obtained without cost. I would consider the cost that really would be incurred, or should logically be considered as being incurred. But disregarding for the moment the question of streets, but referring to easements over property, he certainly thinks they should be allowed for if there are any such easements.

Mr. Barbour: If the company has property existing in the streets, why should that value not be allowed for?

Mr. Pillsbury: Because the company does not own it.

Mr. Barbour: That begs the question, does it not?

Mr. Pillsbury: No, because we are confining our work to use and useful physical property of the company.

Mr. Barbour: If the easements in the streets belong to the company they would be property, would they not? Certainly the poles by themselves would not be worth much.

If the company owns easements in the streets even though they should have been assessed on that theory the witness said he would consider them strictly intangible and not an element of physical

property, and as such they were clearly out of the province of his work.

Whether or not the right to use the streets could be secured without cost was not considered by the witness, because that right he would consider to be an element of franchise or its equivalent, which was not a part of his work as he was reproducing property only.

Commissioner Brownlow: I mean in your statement of the
507 hypothesis upon which you proceeded you considered the property of the existing company as non-existent except for purposes of inventory?

Mr. Pillsbury: Yes.

Commission- Brownlow: Now, if these values or intangible costs had not been excluded from that hypothesis would you then have extended that hypothesis so that all of the property of the company would have been considered non-existent except for purposes of inventory?

Mr. Pillsbury: Not exactly. That would depend then primarily upon whether the purpose was purchase or rates.

Commissioner Brownlow: In a valuation for rates or purchase, if these other considerations had not been excluded from your analysis; if there had been a sum paid, say $250,000 for the right to use the streets for those conduits, would you have included that in your inventory?

Mr. Pillsbury: If that money had actually been paid I certainly would have taken it into consideration. I cannot say whether I would have includec it or not, offhand. I would not try to settle the matter that quickly; bit I certainly would have taken it into account and I certainly would have considered it an element, under such circumstances, to be thoroughly considered in connection with a basis for rates.

Mr. Barbour: Your whole theory assumes that this property is to be built at some place where it has a right to be built?

Mr. Pillsbury: Yes.

Mr. Barbour: You would not build it anywhere else?

Mr. Pillsbury: No.

Mr. Barbour: And that right has a money value, has it not?

Mr. Pillsbury: It has.

Mr. Barbour: And people would give you money for it?

Mr. Pillsbury: In the case of purchase, yes.

Mr. Barbour: Now, if it is impossible to build it without that, and it has a money value, in trying to value this property why should not that value be ascertained and given to it?

Mr. Syme: This is not proper cross-examination at all.

Mr. Pillsbury: No, sir. That depends upon what we are trying to arrive at. In the matter of rates my conception is that we are to arrive at a just amount as a basis for rates. What we have done here is merely one element to be taken into consideration in arriving at that just amount. That does not mean actually that that just amount represents all the values of the property.

Mr. Barbour: There is nothing in this act to limit the purpose of

this inquiry as to value, is there. The direction of the act is that the ultimate fair value shall be ascertained.

Mr. Pillsbury: But I was engaged only for this one element. I have nothing to do with other elements, taken into consideration in connection with this particular element, so that that matter has not concerned me particularly.

Mr. Barbour: But you have been introduced here as an engineer of experience in such matters; that is, in all kinds of valu-
508 ations. I must confess it is not very clear to me, and it seems to me that the last answer by the witness has served to confuse rather than enlighten my understanding of it. Your last answer, in which I understood you to draw a distinction—and see if I have this correctly, please—was that you draw a distinction between value for rate making purposes, and value for condemnation or purchase purposes, and that you consider yourself only interested in the rate situation. Do I get that correctly?

Mr. Pillsbury: I did not mean to imply that. I meant to imply a distinction between a just amount for rate purposes, and value for purchase; in addition to that I mean that in every case this cost for reproduction of physical property only would be only one element to be taken into account, and that is the only element to which I gave any consideration.

The Chairman: That position would not be modified no matter whether the fair value was being determined for rate making purposes, for purchase or for taxation?

Mr. Pillsbury: Under this reproduction cost, as it is strictly an element of value, notwithstanding that it does not represent either the just amount or the value.

Mr. Barbour: That what does not represent the just amount or value?

Mr. Pillsbury: Our final totals here.

509 Land.

Mr. Barbour: In this question of land, were your assessors authorized, under your instructions, to give any consideration to the peculiar value or special adaptation of the property in question for the particular utility purpose for which it was desired?

Mr. Pillsbury: That matter was excluded from my work.

Mr. Barbour: You think that is a matter which should be given consideration, do you not?

Mr. Pillsbury: I think it is a matter which ought to be taken into account in order to decide what disposal to make of it.

Mr. Barbour: If property has value for that purpose, ought not that value to be given effect?

Mr. Pillsbury: Under some conditions of arriving at value.

Mr. Barbour: What conditions do you refer to?

Mr. Pillsbury: In a purchase case I think more consideration should be given to such items than in a rate case.

Mr. Barbour: Why should any different consideration be given to it in one case than in the other?

Mr. Pillsbury: Because you cannot take away a person's property, according to the Constitution of the United States, without just compensation, and because property constitutes everything to which one has the right of possession; but in a rate case, in order that a basis of equality may be struck between the public and the public utility corporation, it is necessary, in my opinion, to ascertain merely what constitutes a just basis for such rates.

Mr. Barbour: The value of the property involved is one of the just elements, is it not?

Mr. Pillsbury: I wouldn't say that. In lieu of value I should say "just amount or the equivalent."

Mr. Barbour: How would you get the just amount if you cut yourself loose from the value?

Mr. Pillsbury: I think they represent two different things.

Mr. Barbour: Is not the value the just amount?

Mr. Pillsbury: I think it would be in a purchase case.

Mr. Barbour: Does not the value control what just amount you can get?

Mr. Pillsbury: In a purchase case I think the value, properly derived, represents the just amount for purchase; but in a rate case I think the just amount is something different from the value.

Mr. Barbour: You said that under the Constitution of the United States property could not be taken without just compensation. What is the distinction in your mind between taking property without just compensation and letting me keep my property, but denying me the right to receive just compensation for its use or for the uses to which I can put it?

Mr. Pillsbury: I think that a just compensation must be allowed.

Mr. Barbour: But the amount on which the return would be allowed would be different in your two cases?

510 Mr. Pillsbury: Yes.

Mr. Barbour: How do you justify the distinction?

Mr. Pillsbury: Only as I have stated, a matter of equality.

Mr. Barbour: Can you elucidate that any further, that distinction?

Mr. Pillsbury: I think it is very difficult to elucidate much further. I think when we say "just amount" we mean just to the company and we mean just to the public. I think it is very difficult to elucidate just what that means. It think it is a mental conclusion by a commission or a body employed to form that conclusion, and it should be such, after they have considered everything relevant to that matter.

511 Structures.

He assumed the buildings awarded under one contract on the cost plus a fixed sum or percentage basis. We assumed all contracts awarded on that basis except those for machinery and supplies.

Mr. Barbour: Then, I understand, in order to get at the cost your unit prices were applied to each item as shown in the piece bills? Was that the way you designated it?

Mr. Pillsbury: Yes.

Mr. Barbour: To what extent, if any, were those unit prices controlled or influenced by the size of the undertaking or the number of buildings?

Mr. Pillsbury: They were controlled by the size of the undertaking, but not exactly as to the definite number of buildings. They represent what we might call wholesale prices. They do not represent the prices which we would have used had we considered every building contracted for separately. The prices were lower than they would have been if considered in that way, if they were built by the piecemeal method.

It is also assumed that the purchase of this material in bulk would enable you to get it at lower prices and we base our prices on that assumption. As estimated the cost of any particular building as shown by the estimate would be smaller than the actual cost of the building by itself, if it had been constructed at that time, and they are lower than we would have applied had we considered the buildings built piecemeal, and they gave no consideration to the fact that the letting of such a large contract for construction at one time would affect the local market in the way of enhancing prices, because he did not consider that the awarding of one contract for the buildings of the company to be built within that period would affect the local market.

Mr. Barbour: Not only the buildings, but other classes of property. It would be a ten million dollar contract, would it not?

Mr. Pillsbury: Not a contract. We were just figuring the buildings, which would amount to $740,989 spread over an assumed period of three years of construction, but he assumes in reality that those buildings would be finished in less time than that, some time during the three years, and that it would be let on a supposed and fixed sum basis which is in reality more logical than to say a percentage basis. All I meant by that was that we did not assume an exact contract, because we throw our contingencies up into our overhead. That is the only distinction I am trying to make. We assume in any of these contracts, except for machinery installed, that the contractor is paid for the material he uses and the work done.

512 Poles.

He gave no consideration to the effect of such a purchase on the condition of the pole market. The aggregate cost was $41,352 for wooden poles. The price of poles was taken up with pole dealers and they ascertained what the Potomac Company was paying. That no provision was made for sub-contractors on the buildings.

513 Buildings.

All openings in the brick work were excluded from his estimate and the figured the net quantities of the brick. They figured the superficial area of the wall and its thickness and determined by actual count the number of brick per cubic foot by actual count; not by

counting every cubic foot, but by counting typical squares of ten feet in various locations of each building. It is generally understood that a cubic foot means just 144 cubic inches of a brick wall; that cubic foot of brick work is a superficial foot, for a 13 inch wall, but he did not follow that course. There are various methods adopted in actual practice but he did not adopt any of them but took an actual count.

Mr. Barbour: If that method were adopted it would have enlarged the foot quite a good deal, would it not?

He eliminated all openings. Ordinarily a builder will not make a deduction for openings unless they are exceedingly large, in which case he allows a lesser price per thousand for the brick installed. We took the actual number of brick, and in determining the price to be applied we took into consideration the special work around the openings, and I think we arrived at the same result; that is, if the work was done accurately in both cases we ought to have the same results. Each kind of brick was supposed to be listed separately and allowed for, and has made allowances for treatment which the bricks would have to be subjected to. For instance, take the grinding of bricks for arches, we compiled our prices of labor for various kinds of work, pilasters, coping, cornices, arches, and all kinds of special work, and the men who priced the brick work finally went to the building with the completed inventory before them, together with all our tabulated cost data, and finally applied to each given location the price per thousand feet of brick which, according to their best judgment, would be the proper price to apply, taking into account all these special features.

He said these computations were actually made; asked to price the same said he could not. We had no time to carry out every source of conclusion that had to be arrived at mathematically in final form for record. So that the only way at present he can account for his work is that his cost data shows the price to apply in view of these special considerations, all of which were taken into account in applying the price of brick. But his detail does not show this in any way. It simply shows the final price which was applied.

Mr. Barbour: Have you any cost sheets which you can refer to, just as a sample, to see how that was worked out?

Mr. Pillsbury: It is along the same logic that you were suggesting in deducting openings. It is merely a slight short cut method of applying prices.

Mr. Barbour: Here, for instance (indicating paper produced) is section B, arches, brick cut 200. That means that a bricklayer would lay 200 of them in a day of eight hours?

Mr. Pillsbury: Yes.

Mr. Barbour: What is the ordinary run of brick?

Mr. Pillsbury: It varies here all the way from 1,700 down to 100. Under pressed brick we have "Arches, brick, cut, 100 per day; arches, few brick cut, 200 per day.

Mr. Barbour: Do you know what the usual charge for cutting brick is in actual practice?

514 Mr. Pillsbury: Ten cents.

Mr. Barbour: Ten cents a piece?
Mr. Pillsbury: No, ten cents a thousand.
Mr. Barbour: Ten cents a thousand?
Mr. Pillsbury: Do you mean for grinding brick?
Mr. Barbour: Yes.
Mr. Pillsbury: No, not by any means. I do not remember now what the usual price is. We have not taken care of that in that way at all. There is a standard price for grinding bricks. I do not remember what it is. We have taken care of that wholly by considering the amount of work that would be done in laying the walls.
Mr. Barbour: Did the items that I called your attention to, and about which you made some response a few moments ago, take care of that grinding of bricks?
Mr. Pillsbury: Yes.
Mr. Barbour: That is the only way you have taken care of it?
Mr. Pillsbury: Yes. We have taken care of it in this manner. This is the sheet. It shows the cost of labor of brick. You will see it varies over a very wide range. This is the sheet which was actually used in the pricing of brick. Where we have a perfectly plain wall, with no special conditions, then the price will agree with this. Where there were special conditions, such as pilasters, a number of arches, and so forth, all of that work was taken into account in arriving at a weighted average price, still according to this table.
Asked to indicate the particular building wall to which this detail sheet, from which he had been reading, applies, the witness replied: "On all structures of these public utilities of the District of Columbia as compiled by us." Mr. Pillsbury using three sheets—D-12, D-13 and D-14; a photostat was to be inserted. Mr. Pillsbury said: "Take small substations for 12 inch walls, approximately 15 feet high. The mortar mix assumed to be 1, 1, 6, that is, 1 part lime, one part cement and six parts sand. The unit is a thousand, the figure M. Bricks assumed to be laid per day 1,300; labor of mixing mortar, 15 cents; carpenter labor 25 cents; tending brick layers $1.50; brick layers $4.12; pointing, and washing joints, $1.67. Foreman, that means job foreman, 38 cents; liability insurance 24 cents. Water five cents. Lumber 25 cents. Miscellaneous 50 cents. Total, $19.11 per thousand. We follow that right straight through and take that same small substation on the next sheet. Again estimating a 12 inch wall as our basis, average 15 feet high, with the same mortar mix, 1, 1, 6, unit M, bricks laid per day of eight hours, 1,300; cubic yards of mortar per unit .4. The cost of the mortar, including haul, varies with the zones into which we divided the District of Columbia, and ranges here all the way from $1.38 for zone No. 1 to $1.99 for zone No. 13, which accounts for our variation in price with respect to location. Our haul for all buildings is specific, not averaged, for the District.

515 Concrete Footings.

Mr. Pillsbury: With regard to concrete footings, where there were no drawings, in some buildings excavations were made to determine

the footing. But in most cases rods were driven down to get the depths, and so forth, and sketches were then made by our own men to show those footings as we believed them to be, and the quantities were measured from those sketches; none of these sketches are in the report.

The field notes show those sketches.

516 Reinforced Steel.

Mr. Barbour: Now, with reference to the quantity of reinforced steel used in reinforced concrete work, when the steel was concealed from ordinary observation or inspection what was the method used?

Mr. Pillsbury: The plans and specifications often gave the data. With the Capital Traction Company we took that question directly up with the company, with their chief engineer, and they showed us just what steel they did have in their slabs. Where there was no available information, nothing but the slab shown, the slab was computed; a load was taken as the basis, an allowance of approximately 150 pounds per foot being made; but that load varied with the character of buildings. The slabs were computed, and computations made to determine what amount of steel would be necessary to carry that particular load, distributed as it was designed to have the load distributed. We tried to provide for that as a competent engineer or architect would provide.

As to all of these things, Mr. Barbour, I have already several times recommended to the Commission where there is any question about the amount of reinforced steel or any other item such as that, that it be arrived at in that manner. I think the matter should be open to adjustment. We do not say it is correct. We say it is correct to the best of our knowledge and belief. We went through all of the processes that we could have been expected to go through in order to ascertain the amount. If you have any evidence to submit to us showing that is incorrect, then so far as I am concerned, irrespective of any attitude of the Commission, I shall immediately correct anything that I think is wrong under such circumstances.

Mr. Barbour: You say it was to the best of your knowledge and belief. It was mostly belief, and very little of knowledge in those particulars, wasn't it?

Mr. Pillsbury: If you mean personal, yes.

Mr. Barbour: It was just a matter of judgment?

Mr. Pillsbury: No, sir; it was a matter of calculation in those cases.

Mr. Barbour: You did not have any basis for the calculation except as to how you would have built it yourself.

Mr. Pillsbury: That is all.

517 Structural Steel.

Mr. Barbour: Take your structural steel. How is that allowed for? Wasn't it divided up into different sizes?

Mr. Pillsbury: It was divided up into types, and, to some extent, sizes. We considered, first, the general character of the building.

Taking a large power house for illustration, we considered light trusses, riveted and pinned connected heavy trusses, riveted and pinned connected columns plain, built-up plain shapes and latticed columns; beams; girders; and we considered plate girders, box girders and lattice girders. We had about the same general classifications for various types of buildings, all of which was merely a starting point. The structural steel, where it could be examined, was piece-billed in order to get the weight of it and the price by the hundred-weight. It is true that the greater portion of the structural steel is concealed from ordinary observation, and as a matter of fact he was governed largely in the matter by the plans and specifications. They had nothing else to guide them. Then, he would not say, however, that so far as the work differed from the plans and specifications that his calculations would be erroneous. He said there was a possibility of erroneous conclusions on that account but they tried in every case not to use the plans until those plans had been pretty well verified. He adopted whatever process he could think of at the time with regard to verifying the plans, and has used the plans in lieu of other data, thinking that those plans were followed when, in reality, they were not, and that he has never made any inquiry to ascertain to what extent any of those plans were departed from. He made no application to the officials of the company for information on that point.

The District of Columbia was divided into 222 sections.

518 Cables.

He thinks that they arrived at that quite accurately, but they are subject to some adjustment on account of the method, which was the only method available to them. Those cables were lead covered, and some of them are of high voltage, and could not cut into them. He only measured the lead and go through the process already outlined. They could not tell merely by inspection at the manholes either as to size, character or condition of insulation and could tell very little about the condition. They could determine the caliber lead diameter and largely the usage, but they went through the process outlined yesterday, and so far as lengths are concerned he measured from manhole to manhole as it coils around in the manhole.

They went over the cable in the manhole with a little measuring wheel and measured it from manhole to manhole with a tape.

Asked if he could tell whether the cables were 1, 2, or 3 conductor cables, he said "We think we have determined that, after having gone through the process which I have indicated. The tape showed that. We had a sketch to show the conduit face of every manhole made in the field on forms prepared for the purpose. If a cable enters a certain conduit we know it comes out that same conduit in the next manhole. There might have been cable splices, but we could tell from that splice whether it was 1, 2, or 3 conductor. We think we have determined the cables with fair accuracy, but because of the necessity of having to adopt that method we think they are open to some adjustment."

Mr. Barbour: Do you know to what extent that should be adjusted?

Mr. Pillsbury: Not to the slightest degree. All I mean is that the Company may have definite information now which, if presented to us, might be more conclusive than ours, and if it were presented to us I will be glad to adopt it. Certain transmission lines and feeders, or parts thereof, within the District, but for use only in connection with energy transmitted without the District, are not included. They were not inventoried.

519 General Equipment.

General Equipment includes Interstate Commerce Commission Classification of Accounts E-305, General Office, General Store and General Stable or Garage Equipment; K-331, Electrical Tools and Implements; E-332, Electric Laboratory Equipment.

520 Engineering.

The total engineering as allowed by Mr. Pillsbury is as follows:

We have some engineering in the Company's organization. Engineering and Supervision, $59,700. In our overheads we have $350,246 which includes architect's fees. A total of $409,946 other than what little amounts we have included in contractor's percentages. They are not supposed to do any real engineering, but there was still some allowance in there for field engineers, though that is an entirely different character of engineering.

They assumed the contractor has a number of engineers in his employ, but they are working more as superintendents.

This $409,946 is all that ought to be considered as engineering.

The witness did not mean to say that in making up the inventory he went over all the items personally but only the particular items.

"I mean by that there are many minor items of cost which I did not personally check. Take the matter of derived cost. For instance, take the brick sheet, of which you are going to get a copy, that went through my hands complete, but the application of these prices in the field to the brick I did not go out and check. If I had I would not have done anything else during that period."

He relied on the members of his staff to apply that rule to the quantities they had derived from the chart.

Asked to designate what he considered the particular items Mr. Pillsbury said:

"Of course, that is pretty difficult. As a matter of fact, I started out with the expectation of checking every item, but I found it was a physical impossibility to do it. Take the matter of basic costs, for illustration, the basic cost of wire: I did not take the actual applied price of every foot of every size of wire, all of which, however, was supposed to be directly traceable back to the base cost. We allowed 15.5 cents as a base cost. That was derived in the manner I have already explained, by a study of past cost, trend, etc. A matter like that, of course, was absolutely settled by me. Having

that base cost, we will consider weather-proof wire plus 1¼ cents for drawing, and then it becomes just a matter of calculation from a definite table to apply it to various sizes of weather-proof wire, the braidings, etc.

"The cost was predicated on the accuracy of the base cost and when we speak of anything being based on the trend it would be based on the accuracy of the information which we had, such as market quotations, and all that sort of thing, and that was compiled by his staff."

He cannot assume responsibility personally for that further than his confidence in the ability and integrity of his staff.

The prices derived from manufacturers were prices strictly of July 1, 1914. "Normal prices as of that date. I will give you an illustration that will be very explicit.

"I have the General Electric Company of Schenectady, who quoted us a price on power plant and substation apparatus of their make. I did considerable corresponding with them, and I think if I read two paragraphs here it may cover the matter. The General Electric Company quoted us in two ways by request; where a piece of apparatus is still being manufactured by that Company then they quoted us their regular, normal price as of July first, just such as they would have quoted to the Potomac Electric Power Company, and that is what they were supposed to quote us based on our request;

but where any item of apparatus was obsolete, as all these
521 were, not from the standpoint of utility to the Potomac Electric Power Company, but purely from the standpoint of manufacture by the General Electric Company. If they were no longer manufacturing such an item then they quoted us two prices, first, the price of the nearest substitute and, second, at my special request, the price which, in their judgment, or in the judgment of their engineering staff, their accounting staff or their cost staff, they would have quoted to your company as of that date had that item still been in normal course of manufacture. That means then we eliminated the making of special patterns. It means the price of a machine would then be based upon the normal price of materials and the normal price of labor, but with improved shop facilities and with patterns on hand, and assuming that the machines were first being made. That was my method of arriving at the normal price, in every case much higher than the price of the substitute. In the final letter quoting these prices Mr. J. G. Barry, manager of the railway department of the General Electric Company, at Schenectady, dated July 7, 1915, says: "In the stamped impression we have inserted the price and weights of the new machine which we would have furnished July 1, 1914. In most cases this machine is practically the same as the old machine, but where the old machine is so obsolete that to reproduce it would mean an unreasonable price we have given you two prices. The one written on the margin of the sheet is the price of the old machine as of July 1, 1914, being based on the original cost of the unit. You will, of course, understand that this figure is not reproduction price. The other price placed in the stamped impression is the price of our

up-to-date machine as of July 1, 1914." He was merely summarizing what I had written to him that I wanted, so I wrote back in my letter to Mr. Barry under date of July 13, 1915, as follows: "I understand from the above quotation that the prices which you have written on the margin of the sheets in the case referred to consist of neither the original sale price nor the price for which you would have reproduced these identical machines on or about July 1, 1914, the machine being so obsolete that they could not have been reproduced except at an unreasonable price. My understanding, therefore, is that the prices referred to constitute original sale prices, modified by reason of commodity and labor prices and conditions, shop conditions, etc., as of July 1, 1914; that is, that those prices are based upon original sale prices, and approximate what the reproduction prices would have been as of July 1, 1914, had conditions been such that these particular machines could have reasonably been reproduced in fact as of that date", to which Mr. Barry, in his letter of July 6, 1915, replied:

"We have your letter of the 13th instant inquiring as to prices of the old machines which we wrote on the margin of the sheets of the pamphlet. In this connection we would advise that your understanding, as set forth in the third paragraph of your letter, is correct. These prices, while based on original costs, have been modified, taking into consideration improvements in the methods of manufacture, and are the prices which we would have quoted July 1, 1914, on the apparatus in question, provided it had continued to be manufactured."

That I believe, to be the fairest conception of normal prices of obsolete machinery as of a given date that I can refer you to. As to all machinery not obsolete from the standpoint of manufacture, we took the prices as of July 1st, as quoted or derived by other means, or took the quoted prices where we could get an authentic one and upon checking found it to be reliable.

522 Unit Prices—Freight.

The amounts allowed for freight were based on charts furnished by the Interstate Commerce Commission at Mr. Pillsbury's request.

In nearly everything he would determine in his own mind from what particular manufacturer he would or should purchase that material and calculated the freight from the plant to point of delivery in Washington; that applied to everything except such items as he has local prices on. For instance, he took the price at the wharf for cement as quoted by the supply dealers at the wharf. We were not concerned in what freight they paid because they were quoting the local price. That was as of July 1, 1914.

Mr. Barbour: How was that price as regards preceding prices?

Mr. Pillsbury: Cement prices have declined. Cement prices are less than they were a number of years ago. To quite an extent but we believe cement prices are down normally now, pretty well below what they were.

Mr. Barbour: Through what period of years had they been declining up to July 1, 1914?

Mr. Pillsbury: I will have to get my charts to show that. Let's see if I have anything here on that. We used $1.20. It did not come from that chart at all. That is merely market quotations as quoted in the Trade Journal showing fluctuations. We used a price of $1.20 per barrel at the wharf.

Mr. Barbour: That is much lower than any quotations shown here, isn't it, during the period from 1908 to 1914?

Mr. Pillsbury: That depends on the locality. It is not the actual price at any given locality. The only object of that was to study the general conditions. The lowest price shown on the chart was $1.32, probably the New York market. That is in sacks. $1.20 for four sacks, and the sacks were supposed to be returned and a slight credit allowed.

Mr. Barbour: $1.32 in 1912 and $1.58 in 1913.

Mr. Pillsbury: That price was quoted to us by two different local concerns, and the Company was paying a still lesser price, not exactly of that date but in their underground conduit construction we found some actual vouchers showing that the Company was paying, as of approximately that date, a lesser price. But we took that price because we believed the price of cement as of that date would be fair.

The quantity involved figured in the price "all on large quantities and wholesale strictly by piecemeal construction the price would have varied all the way through though to quite an appreciable extent" and to what extent he could not answer offhand.

The price of cement was quoted to us by the Hamett Fire Proofing Company and the Columbia Dredging Company, each quoting the same price, $1.20 at the wharf. There were no specific quantities except they were advised it was in large wholesale quantities.

523 Cross-examination resumed.

(Nov. 1, 1916.)

Hypothesis.

Mr. Pillsbury himself responsible for the hypothesis. I was directed to try to ascertain here a reproduction cost in its strict sense. That was, as near as I can remember, the substance of the instructions, and my interpretation of that is as I have outlined. He assumed that the property would be reconsrructed as a continuous process to be completed on July 1, 1914. He thought this hypothesis was fair for this reason in general. We were ascertaining here merely one element of value on the one hand, or one element to be taken into consideration by the Commission in arriving at that just amount I have spoken of for a rate case. If we can assume, just purely for illustrative purposes, that I had been engaged by both parties to this case to use my own judgment all the way through and to evolve something which, of itself, would constitute, in my judgment, that fair value or just amount, doing it by the quickest and cheapest process practicable, then I would have used my judgment all the way through in departing from any definite method as in-

fluenced by what has actually happened to the Company, what they had actually done here and there, and as influenced by other factors of fairness. Having done that, I would have had a mongrel result of no particular benefit to anybody but myself. I would have applied judgment all the way through in weighing matters of fairness, etc. It seemed to me, in a case such as this, where actual cost was being ascertained on the one hand, and where it is pretty well established in law that actual cost shall be an element to be considered, and where it is pretty well established that cost of reproduction shall also be an element to be considered, that it was fairest to make this cost of reproduction a clean-cut, strict reproduction so that it would stand strictly on its own basis, but be capable of being adjusted by the Commission by applying certain modifying factors to it, additions, deductions, etc. In other words, by following what I considered to be a strict, clean-cut, hypothetic reproduction, I think I get something that, as an element of value to be used by others, has much more merit than as though I had departed here and there from a clean-cut outline such as I think I have set forth by reason of being swayed by considerations of what the Company had done in actual practice in this case. I might have considered, for instance, piecemeal construction. Then I think I would have not had a real reproduction. I think I would not have had a reproduction modified by considerations of actual construction by the Company. I think now as it is if the Commission wishes to give weight to piecemeal construction (and I really think the Commission should consider the matter) I think they can take our cost of reproduction, which is on a strictly wholesale continuous process basis, and use judgment as to how it would differ were a piecemeal process adopted instead. In other words, I think all these matters are matters which anyone performing this judicial function should have in mind in the fullest possible manner in arriving at their final, equitable conclusion. The method pursued has given the minimum cost of reproduction as of a given date. And that is the reason and the object he has been driving at. The minimum cost of reproduction as one element to be considered in arriving at ultimate value. It is supposed to be the most efficient humanly practicable reproduction. No large property such as this in actual practice was ever constructed that way.

Mr. Barbour: Therefore, if the value was fixed upon this reproduction cost it would be lower than the property could actually be reproduced for, as properties of this kind are in actual practice constructed?

Mr. Pillsbury: I do not think that question can be given a direct answer, Mr. Barbour. I personally believe that large properties such as this practically never are either reconstructed or originally constructed in that manner. But I think it is entirely practicable to consider that such a reconstruction could be made. I think your question sort of combined the two ideas, that is all. It is a fact in my mind that this would not be the method that would really be followed in practice, because the conditions giving rise to it would never be found in practice. He would never expect to meet such a condition with a large property. In little towns such things are happen-

ing right along but in a small town it is in effect piecemeal construction as compared with this undertaking.

524 Mr. Barbour: If that was made the standard for arriving at value of a property which is the result of growth and development, would not the tendency always be to shrink the value of the investment?

Mr. Pillsbury: I do not see that. I think it is merely one element of value to be given weight by whoever performs the function of arriving at value or just amount. I think what is finally arrived at depends on this factor, together with a great many other factors, and property of this kind as a matter of fact is always built by piecemeal construction. The actual money is paid out at piecemeal rates which are always high.

Mr. Barbour: And yet if the original unit, the thing that was originally built, only was to be considered, and the size and quantities involved in that would fix the unit prices to be applied, and subsequently when a second addition is made you still build on piecemeal prices, and the third and fourth, until finally you get a dozen. Of course the process is gradual, but every addition you make to it has a tendency when computed on the wholesale basis to reduce the value of the gross investment according to this method, because if you would reproduce it as a whole you could get all those materials and labor at lower prices?

Mr. Pillsbury: Yes, sir. I think it is, if it is considered strictly on its merits for what it stands for, and if other factors having a bearing upon the final result are taken into consideration in conjunction with it.

525 Normal Prices.

It would have been impossible to have conceived of these prices as current prices July 1, 1914, and the structure completed as of July 1, 1914, had we not used the word "normal." The idea was to set forth this report on the basis of normal prices as of a specific date. As an actual fact, had the property been built during the three years terminating July 1, 1914, then of fact and necessity the materials would have had to have been purchased and the labor performed and paid for at prices current during those three preceding years. Of that there can be no doubt, but we tried to arrive at a result based upon normal prices, or what we thought were the normal prices, as of a certain date, and we expect those two things to coincide just for this reason, the assumption is on that particular date the property is finished, ready to operate. Now, what is the amount of this particular element of value or fair amount as of that date? That is the basic reasoning behind that assumption. The prices were not exactly average prices, but they were based on average prices, only for the sake of arriving at what we thought were normal prices as of that date.

Mr. Barbour: That is, you wanted to get away from strictly temporary or momentary prices?

Mr. Pillsbury: That was the whole reason; yes, sir. If a contract

of this kind was actually to be let as of July 1, 1914, the contractor would be much more interested in what the prices would probably be during his building period than what they had been in the period preceding. If he could assure himself that the prices of everything he would need had already been fixed, and were unchangeable, he could bid on a very different basis from what he would have to do with the liability of a change in market.

His report is based on an entirely different assumption from that, an ascertained normal basis of prices as of a given date and with no risk to be assumed by the contractor as to his having to pay more than we allowed.

The prices allowed for commodities are assumed to be normal prices as of this date and nothing else. The normal prices as determined by us. Any future rise in price is in no way taken into account in this reproduction, there being no provision made for it and none intended.

The basis is cost plus percentage with the cost ascertained. The object of that was to avoid arriving at a result which is of momentary value; that is, which is based on momentary conditions.

For fluctuating prices we compiled charts which in general showed the average yearly price, or the five-year average price; that is, it showed, we will say, for 1912, what was the average of the five years preceding 1912; for 1911, what was the average for the five years terminating in 1911; for 1910, the same. Also seven-year averages just the same way, so we go right back along the line as to what would the price have been as of 1912, 1913, 1914 on five-year, seven-year and one-year averages. We took all that into account in those fluctuating commodity cases in arriving at what we thought was the fair normal price as of July 1, 1914, but only in the case of real fluctuating items did we do that. Otherwise we took the current prices as of July 1, 1914.

Mr. Barbour: Have you any knowledge as to whether, relatively speaking, the cost of reproduction today would be greater or less than in 1914?

Mr. Pillsbury: It would be greater. How much greater, I cannot answer, whether you mean real reproduction now or normal prices as compared with then. Either way, of course is the higher, we all know that. He could not state how much higher; it would — foolish to state it by percentage. Materials on the average are higher and labor on the average is higher than under present conditions.

Mr. Barbour: Do you ever expect to see prices go back within any reasonably near period to what they were in the periods covered by your estimate?

Mr. Pillsbury: I predict a sharp drop in prices immediately following the suspension of hostilities in Europe, but I do not think that depression will last very long. That is purely a prediction.

526 Mr. Barbour: Do you expect to see labor prices recede to what they were before?

Mr. Pillsbury: I expect to see them recede very sharply following the close of the war, but that is merely a personal opinion.

The witness could not answer whether he expected them to go back to the level of 1914 and the five years preceding. It was something he had not thought of and he could not possibly form an opinion without a lot of thought and he does not think it would be worth much if he put a lot of thought on it.

527 Cost of Promotion and Financing; Cost of Operation; Cost of Development of the Business.

Mr. Barbour: Why do you exclude from your cost of reproduction of this property, in addition to the costs of promotion and financing, the cost of operation, the cost of development of the business? They are, strictly speaking, costs, are they not?

Mr. Pillsbury: The cost of the development of the business Dr. Bemis and I jointly considered as constituting an intangible element, and as such it was, by instruction, excluded from consideration.

Interest during construction was included because it is a necessary item under normal conditions in expense in performing the actual construction. The development of the business is not. It is an incident to it, related to it in a way, but it is not anything that is physically necessary in connection with it. It is not physically necessary to construct the structures which we are dealing with.

He does not think that he has lost sight of the purpose for which the structures were constructed. He thinks that is an element of an intangible nature and not physical. We have not excluded it because it is to be permanently excluded, but we have excluded it because it was not a part of my work.

Mr. Barbour: Do you think those elements should have been included in the cost of reproduction?

Mr. Pillsbury: I think they should have been taken into consideration.

Mr. Barbour: What do you mean by that, Mr. Pillsbury, just for a man passing on it to say, "Well, I have taken that into consideration," but to arrive at some figure where no value is given to it in the result?

Mr. Pillsbury: No, sir. I have used that expression several times, and I will tell you what I mean. I mean a number of things by it. I think this Commission, in performing its judicial function, first of all must consider everything that is relevant to the subject, first to determine whether it shall be given weight or excluded from weight. If given weight in their final result, that weight can be given in any one of three ways, and possibly more. It may be added as an element of value, that is, capitalized, or set up to be amortized or reflected in the rate of return which they allow in a rate case. That is all I meant. I cannot answer your question as to what we did not do with some of these things even if I were supposed to answer such questions without going through a process which I have not done. I think all those things should be considered, and I think that is as complete an answer as I can give you, Mr. Barbour:

Mr. Barbour: Those things, that is, money expended for this pur-

pose, represent real investment just as interest during construction does, do they not?

Mr. Pillsbury: I would not say they represent real investment because that involves the definition of investment, etc.

Mr. Barbour: They represent money spent for a real purpose?

Mr. Pillsbury: They represent money spent for a needed purpose. They represent a real expenditure for a needful purpose to be taken into consideration, in my judgment.

They are not only expenditures, but they are expenditures that the originators have got to take into consideration in their initial financial arrangements.

528 Engineering and Superintendence; Preorganization Expense.

We have not taken care of any preorganization expenses which, in the conceptual case we have in mind, would be incurred other than for construction purposes, that is, we have not included any expense of getting the Company together for the purpose of operating, or any expense of an investigation for the purpose of determining whether such a property would be a paying one or not. That is excluded only because of the statement I have already made. Such expenses would be necessary expenses and just as normally incurred as some that we have included here in our reproduction.

529 Adaptation of the Machinery and Appliances to the Business After Actual Construction.

Testing out and adjusting the machinery and getting it in running order after actual construction so that it runs smoothly. Under our erection charges we have allowed time of experts from various factories for that purpose, but only the time of the men. Our testing charges, by which I mean, for instance, the use of instruments for the setting up of water rheostats and *and* expert service in connection with our construction and engineering, and that is one of the reasons why, upon review, I believe our 5 per cent on plant equipment for engineering is a little low. I believe it is a little low, and intend to correct it to some extent before we are through.

Mr. Barbour: Do you think it would be practicable for the engineering staff of an operating company merely to make the preliminary surveys and reports and prepare plans and specifications and supervise the construction of such a property as that of the Potomac Electric Power Company—I mean economically—within the period stated?

Mr. Pillsbury: I think it is entirely practicable provided a proper staff is assumed for the purpose. I don't think it would have been practiced with the staff we assumed.

Mr. Barbour: What would be the effect on your report of proceeding on the hypothesis that the Company simply has an engineering organization which is to determine the requirements and capacity of plants and distribution system and specifications and

things of that kind sufficiently to let a contract to a general contractor who would do the detailed engineering and construction work?

Mr. Pillsbury: I do not understand exactly what you mean, but that is a mode of procedure which is often followed, just as our mode is often followed. Just how that would affect this by making a change I could not answer. It would be a different assumption. The witness has adopted a method which in his opinion would result in the most economical reproduction of this property as of a given date.

Mr. Barbour: Isn't the one indicated in my question the one most usually followed?

Mr. Pillsbury: Of course we are getting back to the fact that most of these properties are built piecemeal. That is the principal reason. That is so, but in general only one or two machines at a time are installed and small additions are made to the property. Under the hypothetical reproduction which we have assumed, I really think, in my own mind, and I think quite clearly, the method which we have adopted is the more logical one.

Mr. Barbour: But is it a method that experienced men ever follow?

Mr. Pillsbury: There are some very big firms of consulting engineers in this country that make exceedingly high annual fees in performing just such functions as these, but, as I have already stated, a complete, *b*igh property like this is very seldom, if ever built in one continuous process under the hypothetical conditions we have assumed.

Mr. Barbour: Do not the contracting firms get their percentage on those major items?

Mr. Pillsbury: We have allowed a percentage on the major items here, but I have only allowed a small percentage on the big things bought by the Company and a larger percentage on materials bought direct by the contractor.

530 Mr. Barbour: What is the difference in percentage allowed on the two?

Mr. Pillsbury: On buildings we did not assume anything purchased by the Company. The items for structures are assumed to be purchased by the contractor. As to power plants, we assume practically everything purchased by the Company, and there is no contractor, as I have already stated, other than the manufacturer.

Mr. Barbour: Is there any percentage allowed on that for contractor at all?

Mr. Pillsbury: There is a certain percentage allowed for the equivalent of incidental expenses, the undistributed cost part of it, but not profit; a slight amount on erection of such part as, in our judgment, the manufacturing companies would want in their erecting service. In our division "Transmission and Distribution" (that is not an Interstate Commerce account, but that is our general division, you understand, just as in the case of Way, Track and Roadbed, of our railways) we assume the heavy materials allowed 2 per

cent contractor's profit; on all other materials purchased by the Company 5 per cent; on labor 10 per cent; on organization expenses of every kind, 10 per cent profit.

By "heavy" he means the large important items such as cables, transformers, a large amount of wire, poles and other general items of that character, but not cement, concrete, sand or stone, the conduit system or any other items.

Mr. Barbour: As to these big firms that you spoke of who make these big annual fees, do they not get their percentage?

Mr. Pillsbury: It is done both ways when they assumed all responsibility and take the entire contract which in such cases they design as well as contract.

The organization which he has provided for in connection with the Potomac Electric Power Company would not be sufficient to install transformers and meters and connect up 14,000 customers in two years.

The only item in the organization expense which pertains to the matter of Meters and Services is this "Superintendent of Meter Department, $2,400 per year; Assistant Superintendent of Meter Department, $1,500 per year; Engineer of services, $1,800 per year; Assistant Engineer of Services, $1,200 per year," All other expenses are included in the basic or base price and not in this overhead price. Those prices are in four places, partially in the real unit prices, partially in the lump percentage additions made to totals of units as showing right in the report, 15 per cent in case of overhead service and 10 per cent in case of underground and meters; partially in the Company organization, this superintendence I just spoke of, and partially in the engineering or the general costs as applying to Services and Meters.

531 Transformer Installation.

Transformer installation is strictly contract work. The only other work we assumed strictly under contract is our entire division of Transmission and Distribution, excluding, however, Services and Meters, almost 25 per cent of the total costs of this work done by contract as representing labor and 75 per cent material. Our organization expense amounts to 10.9 per cent; cost of labor and materials of the entire basic cost, and we have assumed a profit to the contractor on all his own organization costs and on all labor, but not on material, and on material a weighted average profit of 4 per cent—that is material delivered; 5 per cent on materials purchased by contractor 2 per cent on the large items purchased by Company; and 10 per cent on all costs of hauling. When I spoke of 25 per cent labor I meant entirely exclusive of costs and distribution which we have included with our material and not with our labor.

532 Piecemeal.

Mr. Barbour: How would the cost of reproduction, in accordance with the hypothesis of yours, compare with the cost of construction under the piecemeal method?

Mr. Pillsbury: I have already stated, Mr. Barbour, that all other elements of our hypothesis remaining the same * * * if we had used piecemeal methods instead of a wholesale continuous process, our result would have been higher in amount.

Mr. Barbour: In such a case would not the cost be considerably enhanced, and are not costs actually considerably enhanced by the necessity of operating the property whilst these conditions are being met?

Mr. Pillsbury: Yes. That is a large item which we excluded; that is, we have made no allowance for the property operating during construction, or for temporary construction in order that operation may be maintained, except this, which is practically nothing. We have assumed that this property is put up and used during the third year, and even there, under our wholesale continuous reproduction process, we assume that all additions during that three years are also made in continuity, through the same wholesale process, and then connected up when ready, and that they are not merely day by day additions at all. We assume the whole thing is a continuous wholesale reproduction.

Mr. Barbour: Would there not be additional expense and cost which you have not provided for?

Mr. Pillsbury: There would not be, under our hypothetical assumption; there would be in actual practice, if the property were built as such properties are usually built, on the piecemeal plan.

Mr. Barbour: But even when you built it in this way, when you built it in accordance with your hypothesis, would there not be that interference between your completed and uncompleted operations?

Mr. Pillsbury: Whatever interference there would be would only occur during the third year; and no specific provisions has been made for it.

533 It is a fact that under the method that properties of this kind are actually constructed costs of addition and so on are largely increased by reason of the fact that connections, and so forth, have to be made at times when you have to pay extra for labor such as night work and things of that kind.

534 Contractor's Percentages—Pillsbury.

As stated by the witness contractor's percentages cover costs in addition to the contractor's profits.

Asked to refer to the Interstate Commerce Commission classification and indicate on which of those items covered by that classification, contractor's profits is allowed, and the items on which it is not allowed, the witness proceeded:

E-300. Land devoted to electric operations, contractors' percentage not included;

E-301. Organization, which means company organization. No contractors' percentage included;

E-302. Franchises, no item. When I say no item I merely mean not included in our work. We have no item for franchises.

E-303. Patent rights. No item.

E-304. Other intangible electrical capital. No item.

E-305. General structures. Contractors' percentage included.

E-306. General equipment. Contractors' percentage not included.

E-307. Dams, canals, and pipe lines. No item.

E-308. Power plant buildings. Contractors' percentage included.

E-309. Furnaces, boilers and accessories. There we assume that the stokers are erected by the stoker manufacturers, that the boilers are erected by the boiler manufacturers, and -hile we have added a percentage to erection cost, we have not assumed a separate contractor for that work. There is some analogy. We assume, as I have already tried to state as clearly as I can in this power plant and substation work, that all the heavy work is erected by the makers, and we assume that they charge for the apparatus plus certain erection cost.

E-310. Steam engines, or steam prime movers. The same remarks as apply to E-309;

E-311. Turbines and water wheels. That means water turbines. No item.

E-312. Gas producers and accessories. No item.

E-313. Gas engines. No item.

E-314. Electric generators. Same remarks as apply to E-309.

E-315. Accessory electric power equipment. Practically the same remarks as apply to E-309. There we assume that the switchboards, which form a part of the classification are erected by the General Electric Company—that is, where the switchboards are of their make; we assume that some of that accessory work is done by men employed directly under the organization and the consulting engineer. Some undistributed costs are added, but not equivalent to what we have been discus-ing.

E-316. Miscellaneous power plant equipment. Practically the same remarks that apply to E-315.

E-317. Substation buildings. Contractors' percentage included.

E-318. Substation equipment. Same remarks as apply to E-309.

E-319. Poles and fixtures. Contractors' percentage included.

E-320. Underground conduits. Contractors' percentage included.

E-321. Transmission system. Contractors' percentage included.

E-322. Distribution system. Contractors' percentage included.

E-323. Line transformers and devices. Contractors' percentage included.

E-324. Electric services. Contractors' percentage not included.

E-326. Electric meter installation. Contractors' percentage not included.

E-327. Street and park lighting system. Contractors' percentage included.

E-328. Commercial arc lamps. Contractors' percentage not included.

E-329. Glower lamps. Contractors' percentage not included.

E-330. Electric motors and heaters. No ite-.

E-331. Electric tools and implements. Contractors' percentage not included.

E-332. Electrical laboratory equipment. Contractors' percentage not included.

E-333. Other tangible electrical capital. As I remember contractors' percentage was included.

E-334. Engineering and superintendence. No contractors' percentage in connection with that.

E-335. Law expenditures during construction. No contractors' percentage would be added to that.

535 E-336. Injuries during construction. That item is taken care of in two ways. First in base cost and secondly in contractors' percentage. There is no contractors' percentage added to that item, but the item itself is embodied in contractors' percentage partly, but particularly in the base cost. In our contractors' percentages we have added something for damages, and so forth, liability insurance, casualty insurance pertaining to the same subject, and it is all included in the unit cost.

E-337. Taxes during construction. No contractors' percentage.

E-338. Miscellaneous construction expenditures. No contractors' percentage.

E-339. Interest during construction. No contractors' percentage.

Mr. Barbour: Referring to this question of contractors' percentages, would it be fair to say, broadly speaking, that contractors' percentages are only included in general structures and transmission and distribution?

Mr. Pillsbury: Yes. I have always said, in connection with certain items pertaining to power plants and substations on some of the construction items, we have added something somewhat equivalent, but it is only to take care of costs. We have not assumed the work done under contracts, in other words. We did not try to include all the items the Interstate Commerce Commission reports provide for. On the other hand we tried to adapt all of our costs to that particular classification. We have not included some things which that does provide for, which I have already stated. I mean things that were excluded from our work, and which we have already covered, such as cost of financing, treated by some as an intangible and by some as a tangible item.

The reproduction cost in no way included cost of development.

Witness is not prepared to state that a reproduction report, such as this is, ever shows the true value of property. It is a hypothetical case for the purpose of constituting one basic element to be taken into consideration in arriving at the desired result, whether that is value or just amount.

Mr. Barbour: You could not say, could you, that your report is absolutely accurate?

Mr. Pillsbury: I think that would be a very unwise statement for any engineer ever to make in connection with such a piece of work as this. It was done to the best of our knowledge and belief. There are certain expenditures which would ordinarily be incurred which we have excluded. Those we have excluded. In arriving at value, having as one element thereof a reproduction such as this, consideration also must be given to various modifying factors or elements, as

well as to other elements which may be considered as well as entirely distinct elements that have no particular relationship to this element.

Mr. Barbour: If you can imagine a community such as the District of Columbia, or any city of similar size and surroundings, without electric lighting facilities, in which it was desired to erect a plant, would not such a plant, in your judgment, be most economically built by the piecemeal construction?

Mr. Pillsbury: I do not know what you mean there by the word "economical" I do not believe you mean that less actual cost would be incurred piecemeal than by a wholesale reconstruction?

Mr. Barbour: Not at the end of a twenty year period, probably. But if there were no such thing here, and the community had lived up to this stage without it do you think you could ever raise the capital at once to build such a completed plant in such a community. Would it not have to be built piecemeal and grow as the demand grew for its development?

Mr. Pillsbury: Of course, under all normal conditions, yes. This is strictly a hypothetical case for a given purpose. Yes, under all normal conditions, that is the way I think it would be done. But that would not be a reconstruction. That would be the construction of a plant.

536 Mr. Barbour: Reverting to the question of the original construction of such a plant as this in a community without such a plant and unaccustomed to it, assuming that a company was organized with the necessary capital to do and that it did actually construct such a plant as the Potomac Electric Power Company now has, under the shortest humanly possible method, and was ready to put it into operation as soon as completed, would not the cost of operation and deficits amount to prohibitive figures for the first period of years.

Mr. Pillsbury: I think they would under such a hypothetical case, yes, sir.

Mr. Barbour: I believe you have stated that the conduits, for instance, in Washington, were buolt a little differently from the way they are built in most cities; that they were built in small sections, and that probably the pavement would have to be taken up and removed and taken up again and so on.

Mr. Pillsbury: Yes.

Mr. Barbour: Have you made any allowance for that?

Mr. Pillsbury: None at all, because we were not adopting the piecemeal method. We are reproducing it all at once.

Mr. Barbour: That would increase the cost very much would it not?

Mr. Pillsbury: If we had adopted the piecemeal method that would have been one element which would have increased the cost quite materially. With respect to land, cost of acquisition, abnormal cost by reason of location and adaptability, possible removal of buildings, and so forth, no consideration has been given to the matter.

In the use of his word "valuation" he does not mean "value" but only his judgment of "value." He meant only costs under the hypothesis stated by him.

The heads of departments participated in the determination of the cost unit price.

Dr. Bemis had no connection directly or indirectly with any price applied to any part of this work.

Mr. Barbour: Did the Commission participate in any way in any of those determinations?

Mr. Pillsbury: The only case I can think of now is this: That the Commission transmitted to the Interstate Commerce Commission our request for freight rates. I was supposed to give the last word on all prices, but as I have already stated, on some of the minor prices, adapted from certain basic prices, I did not perform the function of checking up the various matters, and did not finally determine all of the unit prices included in this report.

In some cases I would not make any effort to check those computations, although all the computations were checked by another man than the man who made them. He would not just blindly follow the computation. The head of each department was directly responsible to me for the inventory of his department and for the prices applied. First, the head of each department, and secondly, myself.

Mr. Pillsbury O. K.'d the computation when it was made up, and he finally approved all prices adopted. He grouped the prices in the following order for the purposes of our system:

A. Specific quotations from manufacturers, dealers and agents.

B. Catalogues. Of course that means catalogues with the current discount sheets.

C. Agreements of builders, labor unions, teamsters, manufacture-s and so forth.

D. Market quotations.

E. Local contractors.

F. Compilations derived from agreements with builders, labor unions, teamsters, manufacturers and so forth.

G. Vouchers, contracts of companies being appraised.

H. Our accounting staff analysis of the company's construction accounts, and our own analysis of the company's construction accounts.

I. Government reports.

J. Government contract prices for work in the District of Columbia.

K. Personal data. (Means cost data of the witness compiled from past experience in other work, including that of his staff.)

L. Outside company reports.

M. Out of town contractors.

N. Other appraisals.

O. Trade and technical journals, except market quotations. Market quotations are under D.

P. Cost data books.

538 Copper—Pillsbury.

We finally applied a price of 15½ cents as a base price, to which we added 1¼ cents per pound for drawing into wire. In case of all items requiring freight, of course we added the freight. On cables and all that sort of thing freight was added. Ordinary line wire is distributed here without a freight charge. The cable prices were obtained direct from the manufacturers. The prices on all of the capital to be used was on the basis of 15½ cents. We paid some of the biggest manufacturers in the country for going through the process of working out, according to their engineering and cost methods, the prices on all the cables to be used here, on the basis of 15½ cents as the base cost of copper; 4.6 cents as the normal base cost of lead and other ingredients as of July 1, 1914, labor, and conditions of manufacture and sale as of July 1, 1914.

At the same time we analyzed at great length and in a great deal of detail, the prices paid by the company for cable, ranging back over quite a period.

The prices of copper at that time were very much lower than the prices of copper now. He didn't know the market quotations, but they have been away up. How much more, he could not say; he did not know.

Mr. Barbour: 50 or 100 per cent?

Mr. Pillsbury: I do not care to make that kind of statement. I want to see the quotations first. They are very much higher. I have not been following the quotations lately. My mind has been too full of other matters. I do not like to guess.

Mr. Barbour: You do know that there has recently been an increase as high as 100 per cent?

Mr. Pillsbury: I know it has gone way up. I do not like to make it any more specific than that.

Mr. Barbour: Do you know how much the aggregate of copper in your bill for reproduction amounts to?

Mr. Pillsbury: When you say "copper" I suppose you mean cables complete? I think I can give you something now that will be somewhere near an approximation. This distribution system, for instance, is principally cable. It is not wholly so. There is some labor and some minor items, but it is principally cable, $1,292,439.

Transmission system, mostly cable $374,954.

Then of course there are services. There is a large amount of cable and wire in services, both overhead and underground. I cannot separate them very well.

Mr. Barbour: If the price has increased as much as 100 per cent, that would raise your figures a million and a half dollars on copper alone, would it not?

Mr. Pillsbury: It would, if we were making a similar reproduction using current prices as of today. It would as to that item.

Mr. Barbour: What about the price of lead?

Mr. Pillsbury: The same applies as to iron and steel.

In the judgment of the witness, the selling price at present of metal is abnormal. He means by that that they do not represent the average conditions, or a permanent standard.

539 Asked how long a price had to prevail in order to reach a permanent standard, he said—"We do not expect to have a permanent standard. It represents a fact as of the time and it is not merely a momentary price. It is a condition that everybody dealing in such properties would have to deal with if they had to reproduce this property.

Mr. Barbour: And all the copper in this system could be taken out and scrapped and sold today for higher prices than you have allowed for it, could it not?

Mr. Pillsbury: I believe it could.

The Chairman: And for a higher price than the company paid for it?

His inventory is not complete as of the present date. It includes nothing added since July 1, 1914. It does not show quantities as of the present time owned by the company, and his report does not show the present day prices to be applied thereto.

Mr. Pillsbury: Upon further consideration since I have made only a little modification. I intend to modify engineering and plant equipment because, on very careful review I feel that it was a little low.

540 Adjustment—Pillsbury.

That was true of "removal of obstructions and underground conduits." It is entirely true of any such work as this, that upon very careful review, after it is completed, a few minor adjustments will be found necessary, and that is true of any work that can be assumed within reason, providing the person is conscientious and makes an adjustment where he thinks it is necessary.

541 Personnel of Pillsbury's Employes.

He cannot state to what extent the members of his staff had been employed in valuation work. Some of them have not. As to some of the men for some of this work he preferred that they should have had no previous experience. There are so many theories and so many methods followed, that in getting together an organization like this the great difficulty is not to have it pull apart. * * * I much preferred to have men who have not been trained along any particular idea. This, he think*s*, is apt to be a state of mind in which all theorists get, of being wedded to their own theories, and they do not want any other people's theories to interfere with them.

Does not know to what extent they have been employed by municipalities in valuation work prior to this. Some of them had been employed by him when he had been employed by municipalities and by commissions. Some of his men have been employed for corpo-

rations. Asked to specify, he said—Mr. Minter of Stone & Webster. He was cost analysist for them on the Keokuk Dam which was a very large contract, the work covering not only dam, but it covered power house, power plant equipment, transmission lines, substations and various things.

Where necessary on such large work the prices are reduced by reason of the magnitude of the work.

Jones was of the Westinghouse Electric Manufacturing Company. Mr. Bear came from the Illinois State Commission. Mr. Field came after he had completed the Detroit work where he had been employed by Mr. Bemis who had charge of it.

Witness was the engineer on that work and Mr. Edward P. Burch was appointed by him as engineer in charge, locally.

542 Hypothesis—Mr. Pillsbury.

(Cross-examination continued after recess.)

Under his hypothetical construction program the time when customers would begin to be connected up does not enter into the problem at all. Just as soon as a given unit is turned into operation he assumes that all charges in connection with it are charged to operation and has been excluded.

He makes no allowance for deficits from operation during that formative period or during the period of connection "Not because I think that matter should not be taken into consideration, but because it is excluded from our work." He thinks it should be given consideration.

543 Lumber Prices—Pillsbury.

Witness does not think that lumber prices were abnormally low on July 1, 1914. Asked if he had not stated in his report that the trend of lumber was high and that for that reason he was taking the price as of July 1, 1914, Mr. Pillsbury said "No. I stated the trend had been downward; that the prices had been higher. No; you are right, and I am wrong.

Mr. Barbour: I was thinking of something else. Yes, that is correct. I referred to a fairly steady upward trend. And for that reason he said he was taking the price as of July 1, 1914.

Mr. Barbour: As a matter of fact, were not the prices of lumber abnormally low on July 1, 1914?

Mr. Pillsbury: Of course, the price fluctuates somewhat. When I spoke of the trend I did not mean the daily or monthly fluctuation so much as the general trend. The general trend had been upward. We thought the price as of July 1, 1914, was an abnormal price under all the circumstances, and the Lumbermen's Bureau gave us a corresponding opinion of their own.

He has taken average prices but not a weighted average. It is simply the direct average or market quotations taken from the trade journals; that is to say, iron was taken from the Iron Age.

Asked if the daily average lead you to very erroneous results as to what would be the cost to a utility purchasing its material, Mr. Pillsbury replied: "I have already stated the price we adopted is not intended to represent what the contractor really would have had to pay during that three-year period at all. It is intended to represent the normal price as of the date of our valuation.

The low price is occasioned by the absence of buyers and as a general proposition the price is low because there are no sales being made at the market price, and when the market is best, and I mean by that when the demand is greatest, the prices are the highest, and they are highest partially and largely because of the increased demand; and to a large extent it is true that when railroads or utilities especially are in the market for material they are in the market in times when money is plentiful and prices are high. He thinks this is strictly true with regard to the launching of new enterprises, and is strictly true with regard to making large additions to industrial plants. But he does not think it is true with regard to public utilities in municipalities where there is a normal, steady, healthy growth. But independent of that the daily average of prices would not reflect the average price paid by a company built piecemeal, as the company does build. The prices actually paid by the company would be better reflected in weighted averages of the company's orders in taking quantity into account. And he has not adopted the weighted average because he has not been considering piecemeal construction at all and has merely taken normal prices.

544 Cost of Excavation—Pillsbury.

The cost of excavation would be determined by determining the nature of it; the quantity of it, the operations which logically would be employed in it, and then the cost of those operations.

A very great deal of study was made of the condition of the earth which had to be excavated; that is, in general. Soils all over this District were plotted and studied with great care, but he could not by referring to his report or any data he had indicate the character of the soil that would have to be excavated in the reconstruction of Substation No. 12.

The same unit price is not applied to all buildings.

He divided the excavation into earth, dry and firm; shifting and caving ground; wet, requiring the use of pumps; loose rock, no blasting; solid rock, unrestricted blasting; solid rock, restricted blasting. He separated each one of those into structures, track and roadway, and separated structures into main; main excavation large, using steam shovel; main excavation small, not using steam shovel; trenches for footings; footings for columns and piers; foundations for machinery; grading lot.

He does not think they used steam shovel work anywhere except at Bennings.

The report does not indicate whether the excavations of Substa-

tion 12 was classed with reference to whether it was loose rock, earth, dry or firm.

545 Base Prices for Steel—Pillsbury.

The basic price for steel was $1.45 per hundredweight at the mills which he can divide into many classifications.

For light riveted trusses in a small power house he allowed $1.45 for steel at the mill; $1.40 shop labor; 60 cents detailing; 10 cents shop painting; 15 cents freight; total $3.70; plus 45 cents field labor; plus 10 cents field paint; plus 10 cents miscellaneous; total of $4.35, erected; except, of course, contractor's organization expense and profit which was part of the contractor's percentage.

For placing the reinforcing steel in the building he allowed $1.35 first cost; plus 15 cents freight; plus 60 cents additional for the local cost; or a total of $2.12 installed, exclusive of contractor's organization expense and profit.

He allowed $2.25 per hundredweight for Kahn bars installed which consists of 50 cents for bending and placing, and $1.75 as the price complete delivered at the building.

On reinforced steel they did not take averages but current prices at the time.

546 Prices of Piles—Pillsbury.

The price applied at Bennings for all piles was an average of 95 cents. The quotation of $1.25 was received from the Melton Construction Company.

The price and value of piles is governed by the length. The prices shown in his estimate are the average of all prices allowed.

Mr. Barbour: I desire a copy of the sheet showing concrete prices. He says the prices are applied to different kinds of material, different kinds of concrete work, varying according to the different locations.

All his data on these things may be summarized on one or two sheets in some cases, but is liable to be used with the wrong interpretation. For instance, I have put here on the bottom of many of these sheets, "Note: Important", underlined, "The component parts of costs as shown on this chart are given so that corrections in the total costs due to varying conditions may be made. These total costs are not built up." That is the proper way of applying prices in my judgment, and it is the only proper way to do it where it is possible to do it.

547 Concrete—Pillsbury.

All sorts of things vary the price of concrete. First, there is the price of the elements, the cement, the sand, the stone and gravel. Then, of course, there is the mix, or proportion by parts of the cement, sand and stone. Then comes the method by which mixed; the method by which carried to the mixer; the method by which transported from the mixer or batch mixing, if done by hand; if by

towers, for illustration, the length of time that a given tower may remain at one location; the cost of operating it and depreciation on it; the length of haul, and, by that, I mean the length of wheeling it; the amount of concrete poured in a given spot, the shape more or less, and the difficulty of pouring.

He varied his concrete prices according to all these principal components, and all of these components are supposed to be, and he believed were taken into consideration in arriving at the finally applied price.

In some cases he could take these sheets and arrive at his price but in some cases he could not.

He has a uniform price for the cement; for mixing it for a given class of work, but not always the same kind of labor to mix it. They assumed hand mixing in some cases and batch mixing in some cases; a machine mixer in some cases, and purely by hand in others. For instance, in conduit work, manholes and things like that they assumed hand mixing. They believed that some of that work would be done by a machine mixer, but they used hand mixing, on account of the fact that it travels along much faster, and the mixer has to be moved so frequently, that is all, and because the actual concrete is applied in pretty small quantities. That is an element in which this judgment would have to be applied.

Take, for an example, structural concrete. We charted that by dividing it into all sorts of elements or conditions, and then we grouped all those conditions under office building, one story and basement, two story and basement, three story and basement, four story and basement, five story and basement, and then car house and shops, one story, two story, then power plant, small and large.

The prices would vary on each one of those buildings according to the height or number of stories. Substation, one story and two story, then into "Wall, heavy, retaining, according to the t-ickness of wall more or less; footings, piers, slabs, machinery foundations, car pits, coal bunkers, bridge piers, culverts, man-holes, paving base, railway conduit*y* and electric conduit, tools," and so on. That does not begin to cover exactly every case that might be found. We have charted our prices in this main division. A man has to have a lot of intelligence and be able to use judgment when he is actually applying these prices in order to take the prices which actually correspond with the work in hand.

At this stage the chart was asked to be produced.

All the way through his prices have been influenced by quantity.

No effort was made to value the omitted items, and he has not included any deficit of operating expense during construction period, nor any deficit in return during the construction period.

In arriving at cost the witness does think that consideration should be given to d/ficits of operating expense during the construction period and deficit in return. He thinks consideration should be given to those items or their equivalent.

548 He thinks that the cost of financing must be taken care of either by capitalizing, by amortizing or by reflecting it in the rates. That is the qualification he referred to and what he meant by "should be given consideration."

No consideration has been given to compensation to the promoters of the company, though he thinks that should be taken into consideration in arriving at the cost of reproducing property of this kind. He does not mean that it necessarily must be added. He wants to qualify those items always by the general qualification made. All that he means is that he cannot answer now. If he were to decide what he would do he would probably have to spend several weeks at it. He thinks that the cost of promotion is normally an expense incurred when a property like this is really built. Normally such costs are incurred in connection with the creation of such utilities. There is a difference of opinion as to what a fair estimate of that cost would be.

The Chairman of the Commission objected to this witness being crossexamined on this question, because he had not been employed to do this particular class of work.

Mr. Barbour: Neither this Commission nor anyone else can limit a witness' capacity by merely employing him to do a certain branch of it. When he is introduced as an expert on a question of this kind, then the evidence here is as wide as his experience justifies

Chairman Kutz: We have no objection to you introducing him as a witness, if you wish to do that, but I don't think it is a proper subject for cross examination.

Mr. Barbour: As I understand it, the Commission has introduced him here as a witness to substantiate the work that he did and that has been stated to us at the cost of reproduction of the property of this company.

Chairman Kutz: Of the physical property.

Mr. Barbour: It is all a part of the property. That is what we are striving to get at, Mr. Chairman, and to find out what is the object of this inquiry under the language of the statute. I say this with all due respect in the world to this Commission, but by merely employing a man to do a certain branch of work, and telling him he must not consider other branches, does not deprive us, on cross-examination of a witness who is brought on as an expert on things of this kind, from bringing out anything that he knows in regard to that very subject that is being investigated.

Chairman Kutz: I merely wanted to intimate if that policy were pursued to its logical conclusion it would cover the whole phase of the fair value of the property of this Company, and I think the Commission would very properly object if the cross examination extends to any such extent.

Mr. Pillsbury: I mean to say I have not given them consideration because that was without the scope of my work.

Mr. Barbour: That is what I understood. Are engineers so limited in their investigations.

Mr. Pillsbury: I cannot answer that generally. I think they frequently are. I really think this whole matter is a problem largely for economists, accountants, engineers and judicial minds together.

549 Mr. Barbour: I will ask you this: If the elements of brokerage and discounts are not costs essential in the construction of such a property as this?

Mr. Pillsbury: I can only say what I have before, that it is a cost which normally would be incurred in the actual building of a property.

Mr. Barbour: Is not also the cost of developing and attaching the business of the corporation an expense necessary to be incurred in the construction or reproduction of such a property?

Mr. Pillsbury: Normally there are liable to be deficits at the start, in the case of the actual construction of such property, which might be the equivalent.

Mr. Barbour: Is not the pre-organization expense a considerable item in reproducing such a property or in producing it?

Mr. Pillsbury: When a property such as this is in reality being built now for the first time, in such a city as this, it would be a normal condition to assume that there would be some pre-organization expense, and the accounts prescribed by the Interstate Commerce Commission provided for all these different headings.

550 Obsolete Property—Pillsbury

The witness had given no consideration whatever to property that would not appear in the inventory of property at present in use but which was necessary to be constructed in the early stages of such project "because we were merely determining the reproduction of the now used and useful property." It is true that a property of this kind you would not build a plant as it now is when you first started it because it started as a small plant and grew to be a big one and if the business developed the original plant would be inadequate for the purpose and it could not economically be operated longer and would go out of use in time. That is logical and a new plant would have to be built.

Mr. Barbour: But what I am getting at is this: Is it not a fact that it is a proper cost, viewing the property as a whole in its present state?

Mr. Pillsbury: Those things should be reflected in a historical study of the property.

551 Value—Mr. Pillsbury.

Mr. Barbour: In response to a question by Mr. Syme you said that the total, as given by you, $9,965,088.08, reproduction cost, and $8,127,342.99, representing reproduction cost less accrued depreciation on the physical property, is a fair and reasonable valuation. Do you mean that to be construed as your estimate of the value of the property of the Potomac Electric Power Company?

Mr. Pillsbury: No. As I explained today I did not at all. The term was used a little loosely, and has been all the way through. It usually is in such cases as this. I referred only strictly to our cost of reproduction.

Mr. Barbour: I will ask you if you have, at any time, undertaken to state the present value of all or any of the properties of the Potomac Electric Power Company?

Mr. Pillsbury: I have not.

Mr. Barbour: Your report, then, is not an expression of your views as an engineer, or otherwise, as to what the present value of the property of the Potomac Electric Power Company is?

Mr. Pillsbury: No, sir. It is an expression of one element to be taken into consideration in arriving at such a result.

The witness considered it necessary to consider other elements that go to the cost of reproduction in order to arrive at the present value of the property.

552 Depreciation—Pillsbury.

He regarded the power plant of the Potomac Electric Power Company as being maintained in fully as good condition as it should have been maintained and in a broad sense. And that any other and further expenditures on it for maintenance than those that have been made on it would have been unwise; and in a like sense the same can be said of the entire property of the Potomac Electric Power Company. It is being maintained in a very high grade manner.

The witness stated that at the time he made his estimate of the cost of the reproduction, "I would say that it was as near 100 per cent efficient as could normally and reasonably be expected of an operating utility."

He means strictly as to physical condition. He does not mean with respect to general design or distribution system. "I mean strictly from the standpoint of depreciation."

Mr. Barbour: When I asked you if it was 100 per cent efficient I meant whether or not, in a broad sense, taking the property as a whole, it renders as efficient service to the public as a plant that is practically new or as nearly new as you can imagine such a plant being, completed and put in into operation?

Mr. Pillsbury: I cannot answer that directly. I do not mean just that myself, because that involves design. What I mean is that I have made no surveys, and have seen none, nor have I talked to anyone regarding surveys of voltage distribution. I do not know whether your system as a whole is such that the voltage is being maintained as constant as it ought to be. I assume it is. I assume that the District Department approves such operation. But so far as our depreciation is concerned, which is all I have in mind, we found no material deferred maintenance. That is really the direct answer to it, I think.

(Value.)

Mr. Barbour: I want to ask you this: After giving due consideration and weight to all of the elements of cost, to which you have given consideration, and which you have reflected in your report, considering this property as a going property and earning an income, whether or not such a property so constructed, completed and organized, with its business attached to it and perfected for operation, with customers attached and income established—does not as a whole

represent an additional value over and above cost, which value is not reflected in any of these costs of reproduction?

Mr. Pillsbury: I cannot answer about any of these costs of reproduction, because I do not know what you mean, but I will say yes, over and above what we have shown in our cost of reproduction.

Mr. Barbour: Over and above those things which you say should be given consideration, but to which you have not given consideration?

Mr. Pillsbury: I say consideration should be given to every element of value. Certainly, there are elements of value which are not represented and cannot be reflected on the cost sheet.

553 Depreciation—Pillsbury.

The primary object of the witness' depreciation study was to determine actual depreciation rates and amounts and the amount of accrued depreciation to be deducted on a refund of capital basis, if to be deducted. He does not mean to be understood as saying that there should be a deduction of that amount.

Mr. Barbour: The rate of depreciation would be intended to cover compensation to the company in addition to a fair rate of return on the value of the property, would it not?

Mr. Pillsbury: No, sir. I would say not. Two separate total rates are set up in the report. I would say that neither of them represents compensation in any sense. The higher one represents refund of capital annually to compensate for property consumed in operation during that year. The lower one represents no refund of capital and no compensation of any character, but a payment made for the purpose of enabling the company to maintain its investment intact, which means for the purpose of enabling the company to make the renewals when renewals are necessary by reason of the fact that the physical property is consumed in operation.

Mr. Barbour: Then, in that way, and on that basis, the company would be paid a fair return and in addition to that this depreciation or annuity that you arrive at?

Mr. Pillsbury: I would only speak of one of them as an annuity. The straight line depreciation would not constitute any annuity or any relation to an annuity, but in the other case I would say that the fair return, that is, the basic fair return, ordinarily so-called, is in addition to operating expenses, including maintenance and repairs, and this depreciation allowance or its equivalent, or whatever may be decided upon in lieu of it, I mean, for the purpose given, and that was the object in getting up the depreciation table.

By depreciation he means the proportionate lapse of useful life; nothing else; and that is as far as he wishes to be understood as going and does not wish to state as a fact that the amount shown is the accrued depreciation to date. That is based on the ages being correct. They are correct to the best of our knowledge and belief and if the age is wrong the result is wrong.

As long as the company maintains its property, and renders service to its customers, as efficiently as property of that kind can be

made to render it, he thinks the return should remain constant provided the company is collecting from the rate payers only a fair return upon this just amount for the purpose, plus the minimum amount which will maintain the company's investment intact, which involves no refund of capital to the company.

Mr. Barbour: Assuming, Mr. Pillsbury, that a rate is established by a competent authority, is not the operating company entitled to all of the profit it can make out of its property at that rate?

Mr. Pillsbury: I cannot answer that even as of my opinion. I would not be able to satisfy myself as to the answer to that without quite a lot of thought and study; really have not given that to the problem. I have had no such case ever, and in this case, I have given no thought to that particular subject, and if such is the case here and there is a rate established by competent authority,
554 it is the first case of the kind he has ever come in contact with other than street car fares, fixed by franchise.

The witness knows of no city besides Washington with an underground system dating back as far as 1900 with a population of 300,000, covering the residential district as well as the business section, which has a rate as low as 10 cents as far back as 1900,

(Thursday, November 2, 1916.)

555 Detail Comparison—Pillsbury.

Mr. Barbour: Mr. Pillsbury, beginning on July 28, I believe the Potomac Electric Power Company, through some of the members of Mr. Almert's staff, furnished the Commission with what we have termed "sheets of errors and omissions," referring to what we conceived to be errors and omissions in your compilation of costs. The one dated July 28, 1916, dealt with structures, and particularly with the office building at 14th and C streets, N. W. Have you had an opportunity to check those sheets?

Mr. Pillsbury: No, sir. I have merely read the sheets. All the checking has been done under the direction of Mr. Kappeyne, the engineer of the Commission.

And the witness stated that he is not prepared this morning to make specific statements as to any of those items.

Mr. Pillsbury: I can answer any questions to the best of my knowledge as to what was done, but I cannot answer any questions, as far as I can see now, of any particular benefit*h* with reference to the matter of comparisons that were made, because I had nothing to do with those comparisons and I have not even seen the details of them.

Mr. Barbour: Referring to Volume 1, under the title of "Structures" page 21, the first item to which exception is stated in your item of concrete, plain, walls, 35.4 cubic yards, which you allow for at 5.03 per yard, with a total of $178.06. Our sheet of errors calls for 178 yards.

After stating that he could tell nothing about the discrepancy as to quantity, the examination proceeded.

The elements which go to make up that price of $5.03 per yard:

The mixture was 1, 2½, 5 of stone or gravel. In a minute I can give you the full detail of that. I will give you the cost of what are sometimes called the aggregates. The word "aggregates" by some refers to all ingredients and by some refers to merely the sand and stone. But the cost of the sand, stone and cement I include, together with delivery, at our basic prices, one of which was $1.20. For a barrel of cement, $2.6782, to which was added the haul, which made for that particular location $3.40, to which was then added $1.63 for the labor of mixing and placing.

The witness is unable to state what the cement at that rate would amount to per cubic yard directly the way our cost sheets are worked out. I can tell you by computation, or can give you the details of that computation. On the 1, 2½ and 5 mixture, which is what that mixture was, we have 1.3 barrels of cement at $1.20; .46 cubic yards of sand at 69 cents; .91 cubic yards of gravel at 88 cents, which makes a total of $2.6782. That is not by adding those figures, of course, but by carrying out the multiplication and then the addition.

Mr. Barbour: Was that $1.88 or 88 cents?

Mr. Pillsbury: 88 cents. This is taken as a gravel mixture.

Mr. Barbour: If sand were used instead of gravel would it make a difference?

556 Mr. Pillsbury: It would. Instead of 88 cents we would have used $1.45.

Mr. Barbour: Did you know, in this particular instance, whether that cement was made of stone or gravel?

Mr. Pillsbury: Our sheets indicate that it was gravel. That is what our men ascertained to the best of their judgment, having examined all the data they could get. Those are just some of the specific cases I referred to. We could not ask the company those questions, and if there was nothing to indicate whether it was stone or gravel judgment had to be used as to which it was. If it were a fact that it was stone instead of gravel we did not have the information and we would want to make a correction if that fact was now shown to us. We would want to correct it to that extent.

I want to state right now, Mr. Barbour, as I have already indicated in general, that I canot now tell, from our records in this case, whether judgment on just such a point as that, as to whether it was gravel or stone, came from reading existing specifications or the contract, or whether it was indicated on the plan, or whether it was the result of judgment. To have entered in writing and to have made a permanent record of every little operation like that would have been absolutely prohibitory.

There are no other items of materials actually in the concrete except water. In that particular case the mixing and placing, including water, was $1.63 per cubic yard, which included labor and incidental cost, but not the contractor's percentage. But does include the incidental cost with respect to mixing and placing, such as water, the use of machinery, and so forth.

There is no profit in that. 16.6 per cent is added to all concrete work, consisting of 6 per cent organization expense and 10 per cent

profit on the concrete work and on the 6 per cent organization incident to it. Whenever a like mixture was used the same basic prices would be used but the difference in the haul and the labor would vary. The labor of mixing would not be the same; it would vary upon quantity used, dependent upon the quantities considered and how mixed.

Mr. Barbour: Can you tell me how the labor of placing is arrived at?

Mr. Pillsbury: I can. On that particular concrete it amounts to $5.878 per cubic yard as constituting the total charge of the contractor.

Mr. Barbour: I thought $5.03 was the total?

Mr. Pillsbury: I mean by adding that 16.6 per cent we make the total larger in the cost. I will give you these elements, but I want to repeat what I have said before, that our total costs are not built up costs. On the general computation sheet, from which I will now show the cost elements, as we consider them, there is a note, which I have already read with respect to some sheets, which says:

"*Note, Important:*" (and both of these words are underlined) "The component parts of cost, as shown on this chart are given so that corrections in the total cost due to varying conditions may be made. These total costs are not built up."

All we mean by that is that our totals are either checked with or derived from actual costs of similar construction and resolved into these component elements in order that we might vary costs to fit varying cases.

557 Labor on all buildings is taken at the union scale of wages as existing in Washington as of July 1, 1914, as follows:

Building laborers 20 cents;
Carpenters, 55 cents;
Cement workers, 45 cents;
Hoisting engineers, 62½ cents;
Hod carriers and wheelbarrow men, 28¼ cents.

There is no provision for the inspection or testing of cement in these prices. Whatever costs for testing of cement there would be we assume would be paid directly by the owner. It is something like $15.00 per test and it all depends on the sizes of the shipments, whether the test if taken from a large number of barrels, mixed together, quartered, remixed, quartered again and remixed, or whether it is by barrel, or however, it is made, it is a very small item. However, it is not included here and not intended to be included.

Witness didn't think in a continuous building process extending over three years that there would be practically a continuous testing process.

He is unable to state how many barrels of cement are used in the work.

The witness stated he didn't know anything about the difference in the quantities between his inventory and that of the company.

Mr. Barbour: Item No. 2 refers to reinforcing steel in the footings. On page 24, under the heading "Reinforcing Steel, Bars,

Round, 221 pounds at .0215 cents per pound" will you please state how that quantity was arrived at?

Mr. Pillsbury: I cannot do that, Mr. Barbour. That is impossible. I would like to. I have already told you that reinforcing steel was derived from the plans and specifications, contract data or vouchers, whatever there might be to give an indication of it, where it could be directly derived that way, otherwise it was computed or estimated; but our field sheets do not tell us, in general, at least.

Mr. Barbour: Our information is that these footings were enlarged, and that the quantity was only one when it should have been nine. Do you know whether that is correct or not?

Mr. Pillsbury: No, sir; I do not, and cannot state that his report is correct.

Mr. Barbour: Neither do you know whether or not those footings, as constructed, had been enlarged beyond the number specified in the specifications?

Mr. Pillsbury: Certain statements have been made to me that indicate that they were enlarged by order of the District over and above what the plans and specifications indicate, but I have not investigated to determine whether that is so or not.

And since this information came to the witness he has personally made no effort to ascertain whether or not those enlargements had in fact been made "because that work was not delegated to me, and I wasn't here when it was being done," and no member of his staff, "The Engineer of the Commission, Mr. Kappeyne, according to my understanding, has been making comparisons with a representative of Mr. Almert." He does not know what conclusions they came to in that regard.

558 Unit Prices—Pillsbury.

He could not tell how the unit price of .0215 cents per pound was arrived at.

Mr. Pillsbury: Our cost data would indicate .0212 for that item. It was increased to .0215. I cannot now say why that 3 cents difference per hundredweight was added. That consists of $1.57 plus 50 cents plus 8 cents is bending and placing. The $1.57 is the price delivered f. o. b. Washington, and the 8 cents miscellaneous includes haul. The price of $1.57 for steel is a quotation as of July 1, 1914, obtained from a number of concerns on reinforcing steel and is priced in his judgment based on all that data. I wish to make a correction in my testimony the other day regarding the matter of grinding brick, now that you are coming to brick. I was speaking quickly and purely from memory and a quick glance at this chart. The chart I was referring to was simply the labor chart of laying, and that laying was purely the actual number of brick that would be laid, and did not include the grinding of the brick, which was not added as a specific item, but all special shapes and special brick of all kinds were supposed to be taken into account in arriving at the weighted average. The price to be allowed for brick differs

on pressed brick, etc. There was no specific item, however, added for grinding brick.

His inventory will not show how many ground bricks there were in the arches of this wall or the number of openings. "The pricing of the brick was done on the job with all that data before the man's eye, and was done on the job only for that purpose." * * * All we care to rest upon in that regard is that in our judgment the total price of $18.79 is a fair price for common brick in place.

But he could not say that if he had the work to do over again he would still rely on the price of $18.79, and he has not any idea as to just what processes he might go through, or just how his judgment might be changed, but personally he does believe that the brick prices on the average are fair. He thinks that all of his prices are fair.

He didn't do the judging, however, because that was a physical impossibility and there is nothing direct or specific to indicate that the price of the brick itself was raised by reason of their being ground, but personally I feel confident that it was because the instructions were that all such items should be taken into account, because arches were noted, and because our cost charts took arches into account. I did not, however, apply those prices at the building.

Mr. Barbour: There is a difference of 40,290 bricks in the two estimates. Do you know how that is accounted for?

Mr. Pillsbury: No, sir; I know nothing about it. I personally have not looked into it.

Mr. Barbour: If it is true that that difference is accounted for by the fact that the wall between that and the old office building makes up that difference, and the old office building has since been destroyed and this wall still stands as a part of the present building, why, then, that additional amount should be carried in there, shouldn't it?

Mr. Pillsbury: I should think so, just merely judging from the way you state the matter. If this wall is still standing as a part of this building, I can see no reason why we should not have included it. I have no reason to know that it was not included.

Mr. Barbour: On the subject of painting in that same building, you make an allowance there for three coats of paint on plaster, but make no allowance for oiling floors or the special finish.

Mr. Pillsbury: The finish on mill work right through was priced on a part of mill work. Our mill work prices include paint-
559 ing.

Mr. Barbour: If it appears, as a matter of fact, that the offices on the third floor were finished in mahogany finish, the cost of that should be added, should it not?

Mr. Pillsbury: *It if* appears that there was a special mahogany finish other than we include with our mill work, yes. I use the word "mahogany" to merely represent color. As a special finish it should have been included.

Mr. Barbour: In your mill work, how much do you include for painting?

Mr. Pillsbury: We have that all charted, but I cannot answer

only by one answer, I can answer it in this way, though: For instance, take "birch, special 5 inch trim", We allowed $3.05 per hundred linear feet for painting, plus our organization and overheads.

Mr. Barbour: That is for birch special trimming?

Mr. Pillsbury: Yes.

Oiling floors was not included in mill work; that was an entirely different matter.

Does not remember whether oiling floors is stated in his report. As far as I can see now, it was not allowed for; if it was there the men should have found it and it should have been included.

Cannot say that there was anything allowed for an intercommunicating telephone system. It is not set forth specifically in the final report, but I do not know whether it is included in the electrical work or not. It should have been included in electrical work, because electrical work is supposed to embrace everything electrical. I couldn't say now whether it is there or not. An item amounting to as much as $1,200 would be set out in some way; everything electrical is included; you will find that right through.

Mr. Barbour: Is there anything under electrical work showing an inter-communicating telephone system?

Mr. Pillsbury: That is true of any report. It says "Job, electrical work". I can't tell you by this, but I can by going back to the field sheets.

Mr. Barbour: I will be glad if you will let us know at a later date if you have any item covering that.

Mr. Pillsbury: All right.

Mr. Barbour: On the fly screens you show 1,275. Is that feet?

Mr. Pillsbury: 1,275 feet at 20 cents.

Mr. Barbour: $255.10, how did you get the price on that?

Mr. Pillsbury: I will have to look that up. I haven't the details here on all those minor items.

Mr. Barbour: These sheets show that those screens actually cost $435, exclusive of installation. They seem to be counted by number, 134 at $3.25 and 7 at $8.40, and in plastering on brick all openings with an area greater than 7 square yards was deducted. Our correction sheet calls for 7,000 yards. How did you get the price of that?

Mr. Pillsbury: Those prices are all charted, based on local quotations and other data obtained on plastering.

Mr. Barbour: How much does that amount to per square yard?

Mr. Pillsbury: In this particular case it is 33 cents.

560 Mr. Barbour: On walls with wooden laths?

Mr. Pillsbury: There is nothing of that kind listed here.

Mr. Barbour: On walls with metal laths? Do you know what the unit price is that you allowed there?

Mr. Pillsbury: $1.00. In this particular case, 2-inch $1.00 per square yard.

Mr. Barbour: All the items that I have questioned you about today are contained in a letter of July 28, 1916, submitted to the Public Utilities Commission. In addition to those items that same let-

ter called attention to alleged errors or omissions in your report with reference to power plant B at 14th and C Streets. Has that sheet been submitted to you?

Mr. Pillsbury: I have seen the sheet since I came here.

Mr. Barbour: Have you made any effort to ascertain the propriety of those exceptions?

Mr. Pillsbury: I have not, because Mr. Kappeyne, for the Commission, had this matter in charge and was working upon it.

Mr. Barbour: You are unable to state as to whether or not those exceptions are well taken?

Mr. Pillsbury: I am unable to state at this time.

Mr. Barbour: There were similar exceptions as to power plant F contained in the same letter. Is your response the same with reference to those exceptions?

Mr. Pillsbury: It is.

Mr. Barbour: On August 4th, 1916, a similar letter was addressed to the Commission pointing out alleged errors and omissions in your report on substation No. 2, as follows: That your estimate of 315,623 brick should be 355,500 brick; that your estimate of $914.32 for lumber should be $1,885; that your estimate of 148,920 pounds of steel, aggregating $4,936.53 should aggregate $6,136; that your estimate for concrete to the amount of $3,786.86 used there should be $5,192.70; That for substation No. 10 your estimate of 204,200 brick at $19.56 per thousand, aggregating $3,994.15 should be classified as 185,000 at $20 per thousand, and 49,200 red faced brick in red cement mortar at $25 per thousand, the two items together aggregating $4,930.

There are similar errors or alleged errors pointed out in your estimate for the stone, plumbing, windows, and the concrete in the building. Has this sheet been called to your attention?

Mr. Pillsbury: Yes.

Mr. Barbour: Have you made any efforts to ascertain the propriety of these estimates?

Mr. Pillsbury: I make the same reply as before. I mean to state that Mr. Kappeyne has charge of making those comparisons and his report has not yet been submitted to me. I have not looked into that at all.

Mr. Barbour: A cross examination at this time would not enable you to enlighten us on the subject?

561 Mr. Pillsbury: Not as to quantities. I could probably tell you something about our quantities, but I could not tell you anything about the comparisons.

Mr. Barbour: Is the same true of the comment as to the old office building as to the brick used there, being an item of brick pavement in the yard, $1,646, which is omitted?

Mr. Pillsbury: The same is true.

Mr. Barbour: The same is true as to the exceptions pointed out in that letter of yours estimated for substation No. 12, applying to excavation, brick, plumbing, roofing, steel and so forth?

Mr. Pillsbury: Yes, the same is true.

Mr. Barbour: Also sheet steel, skylights and miscellaneous carpentering?

Mr. Pillsbury: Yes.

Mr. Barbour: In like manner on September 8, 1916, a letter was addressed to the Public Utilities Commission pointing out certain specific errors or alleged errors in your estimates of cost of reproduction as to equipment of substation 2, substation 3, substation 5, substation 10, substation 11, substation 12, substation 13, substation 14, Tennallytown substation, Anacostia substation, Washington Steel and Ordnance substation, Fidelity Storage Company substation, American Express Company substation, Bureau of Engraving and Printing substation, Corby Company substation and the Great Falls substation. Have you made any effort to ascertain the propriety of those exceptions?

Mr. Pillsbury: That was all equipment, was it?

Mr. Barbour: Yes.

Mr. Pillsbury: The same answer. The matter is in charge of Mr. Kappeyne, and his report has not yet been submitted to me.

Mr. Barbour: In like manner on September 11, 1916, a similar letter, covering equipment in power plants B and F was addressed to the Commission.

Mr. Pillsbury: I give the same answer.

Mr. Barbour: Those letters have, I believe, been called to your attention?

Mr. Pillsbury: They have.

Mr. Barbour: But they have not been checked by you?

Mr. Pillsbury: The matter is supposed to be under course of investigation now, but the reports have not come to me as yet.

Mr. Barbour: On September 12, 1916, a similar sheet, applying to criticisms of your estimates as of miscellaneous property was submitted to the Commission.

Mr. Pillsbury: I have not those letters before me. I think I recognize the number read so far. I do not remember this one. What is the date of it?

Mr. Barbour: This is September 12, 1916.

562 Mr. Pillsbury: I make the same answer.

Mr. Barbour: That applies to office equipment, shop equipment, stable equipment, including automobiles, motorcycles, horses, wagons, and so forth.

Mr. Pillsbury: I make the same answer.

Mr. Barbour: Also to tools, implements and laboratory equipment.

Mr. Pillsbury: I make the same answer.

Mr. Barbour: On October 9 a letter was addressed to the Commission, along the same line, but in the nature of an amendment to the letter of July 28, as to a certain item.

Mr. Pillsbury: I have seen the letter. I make the same answer.

Mr. Barbour: On October 20 a similar letter was addressed to the Commission, on behalf of the Potomac Electric Power Company, calling attention to similar alleged errors and omissions in your report covering the transmission and distribution systems.

Mr. Pillsbury: I have seen the letter. I make the same answer.

Mr. Barbour: That letter applies to overhead and underground transmission, and overhead and underground distribution.

Mr. Pillsbury: I will say as to that particular letter that there is no way that those particular items can be checked except by comparison of all original data on both sides. What I mean is it is a little different from some of the other items.

Mr. Barbour: Do you think that a comparison such as that would be practicable?

Mr. Pillsbury: It might or might not. I do not know whether it would or not. It would all depend upon how the original data was taken by both sides. What I mean to say is that if it comes to the question of the number of bricks, we could go back and recheck the number of brick, but this sort of thing cannot be rechecked to see whether the quantity is correct or not. It would be nothing short of a six months' job. But we could compare our original data with your original data, or any data the company might have, to see wherein there was a discrepancy.

Mr. Barbour: Do you think within reasonable limits you would be enabled to get at the discrepancies in that way?

Mr. Pillsbury: I should think so. On some of these heavy items anyway, yes.

Mr. Barbour: That letter, in addition to the items enumerated also covers underground distribution of public lighting system.

Mr. Pillsbury: Yes.

Mr. Barbour: And some other miscellaneous property. Your answer is the same as to all of that?

563 Mr. Pillsbury: It is.

Mr. Barbour: Under date of October 30th, a similar letter, treating in a similar manner with transmission and distribution systems, poles and fixtures, underground conduits, which, of itself, shows a difference of about $150,000 in round numbers; manholes, including appurtenances, $40,000; pavements, $32,000; transformers and devices, $8,000, and other items of similar amount; the street and park lighting showing a difference of $69,000; cable and conduits showing a difference of $83,000, all of those values or estimates being made as of that date. Is your reply the same as to those?

Mr. Pillsbury: The same, yes.

(All letters above mentioned copies into the record as follows:)

564 July 28, 1916.

Hon. Public Utilities Commission,
Washington, D. C.

GENTLEMEN:

In accordance with the suggested procedure outlined in the informal conference held on the morning of July 13th, just prior to the formal session, to the effect that I submit from time to time, as my analysis proceeds, lists of errors and exceptions to the figures contained in the report on cost of reproduction of physical property

of the Potomac Electric Power Company within the District of Columbia, as of July 1st, 1914, herewith find below a list of items which will be followed by other lists as they are prepared:

Office Building, 14th and C Streets.

Concrete footings:

35.4 C. Y. @ $5.03, total $178.06
Should be 178 C. Y. @ $7.00, $1,246.00
These footings were enlarged on orders from the District Building Inspector but this change is not shown in the detail prints.

Reinforcing steel for column footings:

221 lbs. @ .0215, $4.75
Should be 4,000 lbs. @ .03, $120.00

Common brick:

251.48 M @ $18.79, $4,725.33.
Should be 315 M @ $19.50, $6,142.50.

565 Painting:

Oiling and finishing floors, 14,000 sq. ft. @ .025 $350.00.
Mahogany finish 2,000 sq. ft., $120.00.
These items omitted by Commission.

Intercommunicating telephone system:

Total cost $1,200. Omitted by Commission.

Millwork:

Commission's figures of $8,704.00 about $3,000.00 low, but due to amount of detail have been unable to check and point specific items.

Floor:

13,885 sq. ft. @ .06, $832.98.
Should be 19,000 sq. ft. @ .065, $1,235.00.
Reinforcing bare floor slabs, 22,296 lbs. @ .0245, $546.00.
Should be 30,000 lbs. @ .03, $900.00.

Concrete:

Reinforced concrete slabs, beams, etc., shown at $5.13 per yard exclusive of forms.
Should be at least $8.71 per yard to take care of material and labor.

Cast iron:

Cast iron column bases 5,400 lbs. @ .03, $162.00.
Omitted by Commission.

566 Marble wainscoting:

There appears to be an omission of approximately 400 sq. ft. of marble wainscoting, and the unit price is only approximately half actual cost of installing this class of material, the total by the Commission being $277.00 against $1,430.00.

Fly screens:

Shown at $255.10.
These screens actually cost $435.00, exclusive of installation.

Plastering on brick:

4,648.2 sq. yds. @ .33, $1,533.90.
Unit price low, quantity should be 7,050 cu. yds.

Power plant "B," 14th & C streets:

West Stack or Stack #2.
Fire brick 7.978 M @ $35.37, $283.78.
Should be 49 M @ $50.00, $2,450.00.
Base casting, lintels, etc., 93,000 lbs. @ .03, $2,790.00, omitted.

Brick:

Grinding brick in arches 7,840 @ 10¢, $784.00, not included.

Stone work:

Included by Commission at $4,181.00.
Should be $5,754.00.

567 Roof:

2,533 sq. ft. of 4 ply slag @ .05, $126.68.
Should be 27,800 sq. ft. @ .05, $1,390.00.
The overall dimensions of building as given be Commission is approximately 50,000 sq. ft.

Electric lighting:

Included by Commission at $901.00.
Should be at least $2,000.00.

Concrete footings:

4,538.8 cu. yds. @ $4,24, $19,236.03.
Should be $6.50 per cu. yd. $4.25 will barely cover material cost and hauling to site without considering labor of mixing, hauling, placing and compacting.

Wood piling:

Shown by Commission at 18 @ per ft. in place regardless of length.
This unit price very low.
Should be 25¢ per ft. up to 25 feet in length, 30¢ from 25 feet to 30 feet in length, and 35¢ from 30 feet to 35 feet in length.

Reinforcing steel:

6" rails, 1,392 tons @ .0048, $6.68.
Should be $20.00 per ton or $27,840.00.
7,726.1 sq. ft. expanded metal @ .0308, $237.96.
Should be 12,000 sq. ft. @ .045, $540.00.

568 Structural steel:

Commission shows 1,149,938.8 lbs. Impossible to reconcile this figure with anything we have due to classification between structural steel, steel for stacks, ash bunkers, etc.

Power Plant F—Bennings.

Excavation:

Unit price low due to classification.

Concrete piling:

3650 ft. @ .95, $3,468.00.
Should be 3,844 ft. @ $1.25, $4,805.00.

Sheet steel piling:

57 tons @ $40.00.
3,000 lbs. bracing rods @ .03, $90.00.
19.3 tons steel rails used as anchor posts for intake channel, $579.00.
These items omitted.

Plumbing and drains:

Total by Commission, $3,379.00.
Should be $4,161.00 for job.

Skylight and windows:

1063 sq. ft. @ .65, $886.40.
Should be 1650 sq. ft. @ .75 $1,238.00.
Window operating devices, Standard worn gear, each window operated separately, 120 sash, $420.00.
Omitted by Commission.

569 Concrete well:

$200.00 by Commission.
Should be 50 cu. yds. @ $10.00, $500.00.

Intercommunicating telephone system:

$200.00. Omitted by Commission.

Structural steel:

Commissions shows total weight of columns, trusses, girders, beams, etc., as 1,408,247, coal bunker and boiler support steel 194,808 or a total of 1,603,055 lbs. The original order on L. F. Shoemaker & Co. called for 1,617,000 lbs., which was increased to 1,767,000 lbs. and this amount was actually shipped by Shoemaker & Co. The unit price used by the Commission is .032331, which is less than actual cost and should be at least .039.

Concrete, including reinforcing steel and forms:

Total shown by Commission $39,673.00.
Should be at least $48,785.00.
In some cases the unit cost of concrete in place as used by Commission is less than the material cost alone. Price on reinforcing steel is low and unit prices for form work are not consistent; that is, slabs and beam work is about .05¢ while walls is about 14¢. Actual costs are the reverse.

570 Substation #1.

Skylights:

120 sq. ft. metal @ .65, $78.00.
Should be 210 sq. ft. @ .75, $158.00.

Concrete:

46.25 cu. yds. @ 4.34, $200.77.
Should be 90 cu. yds. @ 7.50, $675.00.
Concrete floor, etc., $223.21.
Should be $426.58.
Reinforced slab, $30.09.
Should be $105.00.

Steel and iron:

Structural steel, 0960.4 lbs., $256.75.
Should be 8840 lbs., $309.00.
8 Cast iron columns amounting to $489.00 omitted by Commission.
Steel Ceiling included at $176.64.
Should be $211.92.
Metal cove included at .05 per lin. ft.
Should be .10 per lin. ft.

While the above is not all of the items in these structures on which questions might be raised, they are the principal items with the exception of those items which have been eliminated by the Commission's engineering staff due to their interpretation of the term "used and useful."

571 It has been our understanding that the Commission's engineering staff would furnish us a detailed list of the items so eliminated by them, and if we could have such a list it would expedite our work considerably.

We would call your particular attention to the following items: Stack #2, shown on page 3. The details show that this stock is lined with radial fire brick 4½" thick, for 42' of its length, 6" thick for 50' of its length and 9" thick for 49' of its length, making a total of 49,000 fire brick.

The first item on page 4 shows only 2533 sq. ft. of 4 ply slag roofing. The area of 4 ply slag over boiler room extension alone is 3022 sq. ft.

The last item on page 4 covering steel rails for reinforcing shows an error in unit price or extension, a pound price having been applied to ton quantities.

In connection with the above items, we will be very glad to have a man go into the field with a member of the Commission's engineering staff to check with such representative of the Commission any items that the Commission may so desire to check.

Respectfully submitted,

HAROLD ALMERT,

By —— ——.

572 Harold Almert, Consulting Engineer, The Rookery, Chicago.

August 4th, 1916.

Hon. Public Utilities Commission,
District Building,
Washington, D. C.

GENTLEMEN:

Supplementing our letter of July 28th, and in accordance with the suggested procedure outlined in the informal conference held on the morning of July 18th, prior to the formal session, to the effect that I submit, from time to time as my analysis proceeds, lists of errors and exceptions to the figures contained in the report on the cost of reproduction of the physical property of the Potomac Electric Power Company within the District of Columbia as of July 1, 1914, herewith find below a list of items which will be followed by other lists as they are prepared.

Substation #2.

Brick:

315.623 M.
Should be 355.5 M.

Lumber:

$914.32.
Should be $1,885.00.

Steel:

148,920 lbs., $4,936.53.
Should be Beams, Girders, etc. 146,000 lbs. @ .035—$5,110.00.
Channel Columns, 27,000 lbs. @ .038—$1,026.00.

573 Concrete:

Footings, slabs and floor	$1,994.34	
Floor finish	1,156.42	
Forms	636.10	
		$3,786.86
Should be		$5,192.70

Miscellaneous:

Commission has omitted small brick building on rear of substation lot formerly used as acid house. Now used as storeroom; valued at about $500.00.

Substation #10:

Brick:

204.2 M @ $19.56—$3,994.15.
Should be 185 M @ $20.00—$3,700.00.
Machine made red face brick in red cement mortar 49.2 M @ $25.00—$1,230.00.

Stone:

Granite wheel guards $12.00 each.
Should be $18.00 each.
Limestone sills $161.12.
Should be cast concrete rubbed sills and lintels—406 cu. ft. @ $1.00—$406.00.

Plumbing:

Job $472.29.
Should be $745.00.

Windows:

Total metal windows, $828.19.
Should be $1,346.00.

574 Concrete:

98.2 cu. yds. footings @ $4.24—$416.37.
Should be 140 cu. yds. @ $7.00—$980.00.
Cement sidewalk, $74.55.

Should be $102.24.

Kahn reinforcing bars in place, 50,430 lbs. @ .0228 per lb., $1,149.80.

Should be .04 lb., $2,017.00.

Old Office Building.

Brick:

Commission classified all brick as common. This building was well ornamented, being faced with paving brick on the South and West sides, and select face brick with fancy moulded cornices, belt courses, arches, etc. Proper classification of this brick would increase the Commission figure from $1,000.00 to $2,500.00. Paving in yard—$1,646.00 omitted by Commission.

Substation #12.

Excavation:

Main 7,463 cu. yds. @ 70—$5,224.00.
Trench 83 cu. yds. @ $1.10—$92.00.
Should be 6,100 cu. yds. earth @ .50—$3,050.00.
2,200 cu. yds. loose rock @ 1.75—$3,850.00.
1,000 cu. yds. loose rock @ 2.00—$2,000.00.

From investigation on the ground, including test pits made by our field men, we are satisfied that about one-half of this excavation should be classed as loose rock, and it can readily be shown today that this side hill is based on a soft rock formation well
575 known to exist all along the river, and excavations nearby at present opened up show a soft sandstone or hardpan at about 3½ to 4 ft. below the surface.

It has been impossible to determine from the Commission's report or from the list of omissions submitted whether or not any allowance was made for excavation for storage yard at this site.

Brick:

Footings 13.8 M.
Should be 39.6 M.
Walls 405.2 M.
Should be 419 M—Price also low.
Grinding brick should be 1060 @ .10—$106.00.

Plumbing:

Job $352.09.
Should be $628.00.

Roofing:

Slag 7,357 sq. ft.
Should be 8,310 sq. ft.
Corrugated iron 7,357 sq. ft. @ .06—$390.06.
Should be 7,450 sq. ft. @ 12—$894.00.

Steel:

Total shown $3,254.57.
Should be:
Trusses, purline and lintels 75,350 lbs. @ .038—$2,863.30.
Rods and W. I. pipe columns 5,900 lbs. @ .03—$177.00.
Floor beams and reinforcement 44,000 lbs. @ .033—$1,452.00.
Light iron rods in trusses 8,300 lbs. @ .08—$664.00.

576 Sheet metal & skylights:

Total, $400.00.
Should be $479.00.

Miscellaneous carpentry:

Total, $1,431.00.
Should be $3,118.00.

Unit Prices.

General:

In "Basis and Conclusions" of the Commission's report on Cost to Reproduce, the following is said of unit prices used: "Prices current July 1st, 1914, were taken as to all commodities of stable prices; or the prices of which, as in the case of lumber, are on the steadily upward trend."

Lumber:

Prices of lumber do not show a steady upward trend, but, instead, were abnormally low in 1914 and still lower in 1915. Comparing prices in 1914 with those in effect in 1910 shows a reduction of at least 10% and lumber dealers in Washington could buy stock in the latter part of 1914 for $10.50 M. B. F. that would have cost $14.00 M. B. F. a year previous.

Steel:

The trend of steel prices over the assumed period used by the Commission was downward.

The unit price used for reinforcing steel is very low and may not include any labor cost for placing.

577 Concrete:

The Commission has used a price for concrete in place as low as $3.61 per cu. yd. The following table based on prices current July 1st, 1914, indicates that the cost of materials only, necessary for a concrete mixture of 1, 2½ and 5, exceeds the price used by the Commission for both material and labor.

Cement	$1.75
Sand	.59
Stone	1.88
Total	$4.22

Form work:

The Commission has used from .051¢ per sq. ft. to 1.46¢ per sq. ft. for forms, the lower figure for slabs and beam haunches and the higher figure for walls. This lower figure is scarcely enough to cover material only, and the Commission's square foot figure for slabs and beam haunches is lower than their figure for wall forms. In actual practice the reverse is true. The lower price on slab and beam work is obviously in error for buildings such as public utility generating and substations, since floor and roof slabs are irregular on account of location of equipment, etc., and the forms cannot be used over and over as would be the case in walls.

I hope to be able shortly to submit further lists on equipment and distribution system, but as explained to your Mr. Pillsbury, due to the wide differences in classification, etc. in the latter division of the work, progress in analyzing the many items is not as rapid as I should like.

Respectfully submitted.

H. A. F.

H. A./J.

578 Washington, D. C., September 8th, 1916.

Hon. Public Utility Commission,
District Building,
Washington, D. C.

GENTLEMEN:

Supplementing our letters of July 28th and August 4th, and in accordance with the suggested procedure outlined in the informal conference held on the morning of July 13th, prior to the formal session, to the effect that I submit, from time to time, as my analysis proceeds, lists of errors and exceptions to the figures contained in the report of the cost of reproduction of the physical property of the Potomac Electric Power Company, within the District of Columbia, as of July 1st, 1914, herewith find below a list of items which will be followed by other lists as they are prepared.

Equipment.

Substation #2:

Listed as $211,582.22.
Should be 221,374.91.

You are low on tools $407.00, switchboards and instruments $4,770.00, furniture and fixtures $238.00, while spare parts amounting to $3,170.00 have been omitted entirely.

Substation #3:

Listed as $24.746.03.
Should be 27,157.03.
Valuation of each rotary is $330.00 low, making a total of $660.00 for the 2 rotaries.
579 Switchboards and instruments are $1,181.00 low, while an air compressor valued at $411.00 and spare parts at $159.00 have been omitted entirely.

Substation #5:

Listed as $27,686.00.
Should be 28,580.00.
Rotaries and transformers are $502.00 low, and tools $89.00, while spare parts amounting to $193.59 and furniture and fixtures amounting to $30.00 have been omitted entirely.

Substation #10:

Listed as $156,168.02.
Should be 163,208.16.
Your figures are low on tools $206.00, on furniture and fixtures $75,00, on rotaries and transformers $998.00, on storage battery $2,134.00, and on switchboards and instruments $3,375.00, while spare parts amounting to $250.00 have been entirely omitted.

Substation #11:

Listed as $28,194.96.
Should be 32,173.00.
Your figures are low on furniture and fixtures $163.00, rotaries and transformers $475.00, blowers and motors $97.00, switchboards and instruments $2,894.00, while spare parts amounting to $231.00 have been omitted.

Substation #12:

Listed as $91,552.12.
Should be 96,795.80.
You are low on rotaries and transformers $3,002.00, on
580 booster set $235.00, switchboards and instruments $1,559.00 and on tools $89.00, while spare parts amounting to $180.00 have been omitted.

Substation #13:

Listed as $50,880.12.
Should be 54,756.46.
Switchboards and instruments are low in amount $1,675.00, rotaries and transformers $1,855.00, tools $37.00, on furniture and fixtures $28.00, and spare parts amounting to $131.67 have been omitted.

Substation #14:

Listed as $28,102.13.
Should be 31,218.25.
Switchboards and instruments are $2,009.50 low, booster set $244.00, rotaries and transformers $749.00, while tools in amount $31.00 and spare parts amounting to $73.00 have been omitted.

Tennallytown substation:

Listed as $4,525.16.
Should be 5,942.00.
Commission valuation of all auto transformers is low $354.00, on current transformers $68.00, on wire and cable $86.00, while the valuation omits entirely a transformer at $96.00, an air compressor equipment at $379.00. The price of the auto transformer, f. o. b. factory, exceeds your valuation installed by $295.00.

Anacostia substation:

Listed as $4,424.74.
Should be 5,383.51.
Your valuation is low on the booster set by $683.00, and on the constant current transformer $276.00.

Washington Steel & Ordnance substation:

Listed as $12,914.47.
Should be 14,064.03.
581 Your valuation is low on rotary $146.00, on current transformers $76.00 and on switchboards and instruments $742.00.

Fidelity Storage Co. substation:

Listed as $4,414.14.
Should be 4,784.50.
Your valuation is low on rotary $118.00 and on switchboards and instruments $252.00.

American Express Co. substation:

Listed as $3,242.47.
Should be 3,627.00.
Your valuation on rotaries is low in amount $62.00 and on switchboards and instruments $322.53.

Bureau of Engraving & Printing substation:

Listed as $14,202.47.
Should be 15,173.85.
Valuation on rotaries is low $209.00, on switchboards and instruments $701.00, while spare parts and tools, amounting to $51.00, have been omitted.

Corby Company substation:

Listed as $18,540.07.
Should be 20,071.43.
Valuation on rotaries is low $447.00 and on switchboards and instruments $1,084.00.

Great Falls substation:

Your valuation omits entirely equipment in this substation amounting to $839.11.

With one exception, all of the figures in the foregoing letter, showing the total valuation included in your report for equipment at the various substations, are the amounts for labor and material only, such allowances as were included in your report for contractor's percentage having been eliminated. The one exception to this
582 rule is for the figure of $18,540.07, for the Corby Company Substation, in which is included whatever amount was allowed by the Commission for contractor's percentage, inasmuch as the report does not contain detailed sheets covering the valuation of this particular equipment.

All of the statements of errors and omissions contained in this letter and in our letters of July 28th and August 4th are made as of July 1st, 1914, and do not, therefore, list as omissions any equipment or other property added since that date.

Respectfully yours,

F. C. H.:D. N.

583 Copy.

Washington, D. C.,
September 11th, 1916.

Hon. Public Utility Commission,
District Building,
Washington, D. C.

GENTLEMEN:

Supplementing our letters of July 28th and August 4th, and in accordance with the suggested procedure outlined in the informal conference held on the morning of July 13th, prior to the formal session, to the effect that I submit, from time to time, as my analysis proceeds, lists of errors and exceptions to the figures contained in the report of the cost of reproduction of the physical property of the Potomac Electric Power Company, within the District of Columbia, as of July 1st, 1914, herewith find below a list of items which will be followed by other lists as they are prepared.

Equipment Power Plants "B" & "E."

(Power Plant "B.")

Economizer:

Complete. Listed as $9,985.95.
Should be 13,300.00.

Uptakes, breeching, and flues:

Listed as $6,119.07.
Should be 10,404.17.
584 We believe that the fan has been entirely omitted from this equipment.

Feed water heater:

Listed as $1,086.80.
Should be 4,288.81.
4 Harrisburg Pipe Bending Co. heaters have been entirely omitted.

Piping:

Listed as $39,747.03.
Should be 44,137.21.

Engines and condensers:

Listed as $82,226.97.
Should be 85,176.45.

Belting:

Listed as $3,101.64.
Should be 5,980.15.
Both prices and quantities are low.

Switchboards & instruments:

Listed as $3,698.21.
Should be 15,718.85.
All switchboard panels except numbers 15 to 20, inclusive, have been omitted.

Spare parts:

Omitted entirely.
Should be $4,182.26.

585 Tools:

Omitted entirely.
Should be $866.36.

Traveling crane:

Omitted entirely.
Should be $7,137.00.

Pulleys & shafting installed:

Omitted entirely.
Should be $9,711.85.

These differences are obtained after taking into consideration the fact that you have listed the arc machines in Power Plant "B" as a part of the equipment of Substation #16, although I believe they should be considered as generating equipment and included in the totals for Power Plant "B."

Power Plant "F."

Smoke flues:

Listed as $13,564.80.
Should be 18,151.00.

Piping:

Listed as $60,985.52.
Should be 71,053.35.

586 Switchboards & instruments:

Listed as $29,232.93.
Should be 35,014.58.

Traveling crane:

Listed as $8,153.74.
Should be 9,595.00.

Spare parts:

Entirely omitted.
Should be $8,635.38.

All of the statements of errors and omissions contained in this letter and in our letters of July 28th and August 4th are made as of July 1st, 1914, and do not, therefore, list as omissions any equipment or other property added since that date.

Very truly yours,

HAROLD ALMERT,
By —— ——.

F. C. H.: D. N.

587

Washington, D. C.,
September 12th, 1916.

Hon. Public Utilities Commission
of the District of Columbia,
District Building,
Washington, D. C.

GENTLEMEN:

Supplementing our several recent letters, and in accordance with the suggested procedure outlined in the informal conference held on the morning of July 13th, prior to the formal session, to the effect that I submit from time to time, as my analysis proceeds, lists of errors and exceptions to the figures contained in the report of the cost of reproduction of the physical property of the Potomac Electric Power Company, within the District of Columbia, as of July 1st, 1914, herewith find below a list of items which will be followed by other lists as they are prepared.

Miscellaneous Property.

Office equipment (14th & B N. W.):

Shown in your report at $23,595.10.
This should be 35,213.80.

Shop equipment (14th & B N. W.):

Shown in your report at $4,544.80.
This should be 8,263.35.

588 Stable equipment (including automobiles, motor-cycles, horses, wagons, etc.):

Shown in your report at $39,053.64.
Should be 43,748.87.
In this division, among other items, I found that 6 automobiles were entirely omitted.

Tools and implements:

Shown in your report at $5,194.39.
Should be 8,263.35.
This is the total for tools and implements for the entire property, outside of substation and power plant tools and, as explained to Mr. Pillsbury, our inventory of these tools was secured from the several foreman who had tools assigned them, so that we are reasonably sure that we secured a complete list of all tools at specific permanent locations, as well as at temporary locations, and tools in transit.

Laboratory equipment:

Shown in the Commission's report at $9,593.93.
This should be 16,850.73.
The same remarks apply to this division as to the Tools and Implements—namely, that our inventory covered all test and other instruments in transit and at temporary locations, as well as those permanently assigned to the Testing Department.

589 On account of the great number of details in the above divisions, we have been unable to check, by items, except in the case of automobiles, horses, etc., and are, therefore, not in a position, at this writing, to state specifically what items of Tools, Laboratory Equipment, etc., have been omitted by you.

Respectfully yours,

HAROLD ALMERT,
By H. L. D.

H. L. D.: D. N.

590 Copy.

Harold Almert, Consulting Engineer, The Rookery, Chicago.

Washington, D. C.,
October 9th, 1916.

Hon. Public Utility Commission,
District Building,
Washington, D. C.

GENTLEMEN:

Confirming our conference of October 6th, this will call your attention to the omission in your "Cost to Reproduce" report of the Potomac Electric Power Company, of Steel Columns in Office Building, amounting to approximately 20,000 lbs.

This item should be inserted in our letter to you of July 28th, page 2, as item No. 10½

We also call your attention to your item of "Reinforcing Steel" Chimney No. 2, 20,799 lbs. @ .0048—$99.79, page 66 of your report on Power Plant "B." This item should have been priced at .033 per lb.—$685.71.

We now understand that this amount should be used to reduce the amount we listed as omitted under item No. 15 in our letter of July 28th, 1916.

Very truly yours,

HAROLD ALMERT,
By (S.) C. B. WILLIAMS.

D. N.

591

Washington, D. C.,
October 20th, 1916.

Hon. Public Utilities Commission
of the District of Columbia,
District Building,
Washington, D. C.

GENTLEMEN:

Supplementing our several recent letters, and in accordance with the suggested procedure outlined in the informal conference held on the morning of July 13th, prior to the formal session, to the effect that I submit from time to time, as my analysis proceeds, lists of errors and exceptions to the figures contained in the report of the cost of reproduction of the physical property of the Potomac Electric Power Company, within the District of Columbia, as of July 1st, 1914, herewith find below a list of items which will be followed by other lists as they are prepared.

Transmission and Distribution Systems.

O. H. Transmission:

Total wire shown by Commission is 256,516 ft.
This should be 340,806 ft., as follows:

592 Item.	Quantity.
1/0 W. P. wire	46,596 ft.
#2 W. P. wire	139,428 "
#4 W. P. wire	40,855 "
#6 W. P. wire	13,910 "
#2 Al. steel core	98,943 "
1/0 V. C. L.	393 "
1/0 3/C P. L. on 5/16" messenger	681 "
	340,806 ft.

The total cost of this wire is shown by the Commission to be $11,443.43. This should be $17,623.80.

U. G. transmission:

Total cable shown by Commission is 386,047 ft.
This should be 409,941 ft., as follows:

Item.	Quantity.
#10 V. C. L.	1,861 ft.
#10 3/C P. L.	6,175 "
#8 R. L.	1,134 "
#6 R. L.	10,396 "
#6 N. L.	189 "
#4 R. L.	4,323 "
#2 3/C P. L. 6,600 V.	10,671 "
#1 4/C P. L.	5,054 "
1/0 R. L.	2,185 "
1/0 P. L.	108 "
1/0 3/C P. L.	41,686 "
1/0 4/C P. L.	3,549 "
250M 3/C P. L.	272,551 "
250M V. C. L.	157 "
250M 3/C Submarine	447 "
250M R. C.	196 "
500M R. C.	50 "
4/0 3/C P. L.	31,255 "
#2 4/C P. L.	8,500 "
#2 3/C P. L. 13,000 V.	9,454 "
	409,941 ft.

593 The total cost of this cable is shown by the Commission to be, approximately, $311,166.62, including splices. This should be $344,820.98.

O. H. distribution:

Total wire shown by Commission is 1,775,980 ft.
This should be 1,782,171 ft., as follows:

Item.	Quantity.
#10 W. P. wire	1,667 ft.
#8 W. P. wire	178,305 "
#6 W. P. wire	993,493 "
#4 W. P. wire	309,262 "
#2 W. P. wire	167,954 "
1/0 W. P. wire	115,936 "
2/0 W. P. wire	1,344 "
500,000 W. P. wire	851 "
600,000 W. P. wire	10,099 "
#8 Tree Wire	30 "
#6 Tree Wire	176 "
#8 Duplex R. C.	40 "
#8 3/C R. C.	303 "
#6 3/C R. C.	890 "
#4 3/C R. C.	700 "
1/0 R. L.	85 "
#1 R. L.	1,006 "
4/0 W. P. wire	30 "
	1,782,171 ft.

The total cost of this wire is shown by the Commission to be $56,709.13. This should be $65,885.12.

U. G. distribution—2,400 volt:

Total cable shown by Commission is 1,077,192 ft.
This should be 1,080,863 ft., as follows:

Item.	Quantity.
#10 R. L.	17,701 ft.
#10 V. C. L.	1,229 "
#8 R. L.	9,250 "

594

#6 R. L.	77,546 "
#6 4/C P. L.	8,813 "
#4 R. L.	292,392 "
#4 2/C P. L.	8,649 "
#4 2/C R. L.	1,316 "
#4 3/C R. L.	301 "
#4 2/C Submarine	250 "
#2 R. L.	154,378 "
#2 2/C R. L.	6,739 "
#2 3/C P. L.	16,231 "
1/0 2/C R. L.	66,874 "
1/0 R. L.	54,276 "
1/0 2/C P. L.	79,625 "
1/0 3/C P. L.	39,922 "
1/0 P. L.	2,673 "
1/0 4/C P. L.	21,582 "
3/0 R. L.	457 "
250M R. C.	729 "
#1 4/C R. L.	166,413 "
2/0 R. B.	4,179 "
1/0 R. B.	49,216 "
#1 R. B.	122 "
	1,080,863 ft.

The total cost of this cable is shown by the Commission to be, approximately, $219,979.26, including splices. This should be $237,236.77.

U. G. distribution—600 volt:

Total cable shown by the Commission is 329,802 ft.
This should be 339,473 ft., as follows:

Item.	Quantity.
#4 R. L.	32,635 ft.
#2 R. L.	59,611 "
#1 R. L.	20,423 "
1/0 R. L.	29,746 "
1/0 2/C P. L.	140 "
2/0 R. L.	5,011 "
3/0 R. L.	8,609 "
250 R. L.	35 "
350 R. L.	22,371 "
350 P. L.	114 "
500 R. L.	4,488 "
500 P. L.	11,036 "
600 P. L.	5,434 "
600 P. L.	9,113 "
700 P. L.	20,156 "
700 2/C P. L.	439 "
595	
750 P. L.	10,749 "
1000 R. L.	26 "
1000 P. L.	72,266 "
1000 Conc. P. L.	7,668 "
Total Lead Covered	320,070 ft.
#6 R. C.	1,425 ft.
#2 R. C.	279 "
3/0 R. C.	1,200 "
3/0 W. P.	45 "
4/0 W. P.	3,339 "
500 W. P.	1,119 "
750 R. C.	542 "
1000 R. C.	4,180 "
1500 R. C.	246 "
Total Non-Lead	12,455 ft.
3/0 Bare Cop.	749 ft.
4/0 Bare Cop.	5,280 "
1000 Bare Cop.	919 "
Total Bare Cop.	6,948 ft.
Grand total	339,473 ft.

The total cost of this cable is shown by the Commission to be, approximately, $144,782.43, including splices. This should be $155,300.69.

U. G. Distribution—220 volt:

Total cable shown by the Commission is 2,705,361 ft.
This should be 2,766,595 ft., as follows:

Item.	Quantity.
1500M P. L.	18,123 ft.
1000M P. L.	109,098 "
1000 V. C. L.	62 "
1000M R. L.	25,737 "
750 P. L.	14,369 "
700M P. L.	56,389 "
700M R. L.	42,732 "
600 P. L.	3,123 "
500M P. L.	73,928 "
500 J. L.	514 "
500M R. L.	109,059 "
350M R. L.	51,421 "

596

350 P. L.	1,325 "
300M R. L.	28,953 "
250M R. L.	206,825 "
4/0 R. L.	39,773 "
3/0 R. L.	147,657 "
2/0 R. L.	21,568 "
1/0 3/C P. L.	30 "
1/0 R. L.	108,589 "
1/0 2/C R. L.	20 "
#1 R. L.	59,793 "
1/0 2/C P. L.	85 "
#2 R. L.	621,756 "
#4 P. L.	233 "
#4 R. L.	41,665 "
#6 P. L.	1,488 "
#6 R. L.	140,164 "
#8 R. L.	10,101 "
#10 R. L.	4,422 "
1000M Con. P. L.	17,867 "
#14 3/C R. L.—pressure	137,238 "
#10 V. C. L.	43 "
1000M Con. P. L. with Pw.	17,978 "
#6 2/C R. L.	114 "
Total Lead Covered	2,112,242 ft.
1000M W. P.	223 ft.
500 W. P.	136 "
250M W. P.	5,269 "
350 W. P.	162 "
4/0 W. P.	6,254 "
3/0 W. P.	4,086 "

Item.	Quantity.
2/0 W. P.	32,724 "
1/0 W. P.	131,749 "
#1 W. P.	612 "
#2 W. P.	199,075 "
#4 W. P.	49,393 "
#6 W. P.	24,101 "
#8 W. P.	14,266 "
Total W. P.	468,050 ft.
1000M R. C.	6,864 ft.
750M R. C.	1,638 "
700 R. C.	889 "
600M R. C.	15,933 "
500M R. C.	20,356 "
350M R. C.	7,620 "
250M R. C.	20,741 "
4/0 R. C.	19,483 "
2/0 R. C.	32,088 "
1/0 R. C.	20,004 "
#1 R. C.	7,473 "
#2 R. C.	2,640 "
#4 R. C.	5,966 "
#6 R. C.	6,163 "
#8 R. C.	337 "
Total R. C.	168,195 ft.
3/0 Bare	2,833 ft.
2/0 Bare	8,769 "
1/0 Bare	6,013 "
#6 Bare	493 "
Total Bare	18,108 ft.
Grand total	2,766,595 ft.

597

The total cost of this cable is shown by the Commission to be about $702,907, including splices. This should be $776,806.02.

Public lighting—overhead:

Total wire shown by the Commission is 1,178,649 ft.

This should be 1,181,478 ft., as follows:

Item.	Quantity.
#6 W. P. wire	41,128 ft.
#8 W. P. wire	1,134,377 "
#14 R. C. wire	460 "
#8 Mast arm	3,973 "
#10 R. L.	628 "
#8 R. L.	922 "
Total Wire	1,181,478 ft.

The total cost of this wire is shown by the Commission to be $19,320.41. This should be $23,127.91.

Public lighting—underground:

Total cable shown by Commission is 1,247,575 ft.
This should be 1,265,617 ft., as follows:

Item.	Quantity.
#8 V. C. L.	54,407 ft.
#8 R. L.	73,855 "
#10 V. C. L.	654,666 "

598

#6 R. L.	294,971 "
#6 R. C.	14,564 "
#8 R. C.	9,054 "
#10 R. C.	9,283 "
#8 Mast arm	77 "
#14 Duplex R. C.	321 "
#10 R. L.	71,981 "
#14 3/C R. L.	321 "
#12 2/C R. C.	1,652 "
#10 2/C V. C. L.	6,841 "
#10 2/C S. M.	32,788 "
#8 2/C R. C.	1,016 "
#6 V. C. L.	266 "
#6 W. P.	4,036 "
#4 R. L.	25,758 "
#4 2/C P. L.	60 "
#14 R. C.	2,811 "
#4 W. P.	1,256 "
#1/0 R. L.	414 "
#1/0 R. C.	3,659 "
#1/0 2/C R. L.	232 "
#10 2/C R. C.	1,328 "
Total	1,265,617 ft.

The total cost of this cable is shown by the Commission to be, approximately, $117,012.72, including splices. This should be $136,170.73.

Miscellaneous Property.

In checking over the miscellaneous property, it was found practically impossible to make actual comparisons, due to numerous locations of same class of property, such as tools, furniture and fixtures, laboratory equipment, etc.

We did, however, check those items in a general way, and among other things noted the omission of six automobiles belonging to the Potomac Electric Power Company.

All of the statements of errors and omissions contained in this letter and in our previous letters are made as of July 1st, 1914, and do not, therefore, list as omissions any equipment or other property added since that date.

Very truly yours,

HAROLD ALMERT,
By H. L. DICKERSON.
C. B. W.

D. M.

599 Harold Almert, Consulting Engineer, The Rookery, Chicago.

October 30th, 1916.

Hon. Public Utilities Commission
of the District of Columbia,
District Building,
Washington, D. C.

GENTLEMEN:

Supplementing our several recent letters, and in accordance with the suggested procedure outlined in the informal conference held on the morning of July 18th, prior to the formal session, to the effect that I submit from time to time, as my analysis proceeds, lists of errors and exceptions to the figures contained in the report of the cost of reproduction of the physical property of the Potomac Electric Power Company, within the District of Columbia, as of July 1st, 1914, herewith find below a list of items which will be followed by other lists as they are prepared.

Transmission and Distribution System.

Poles and fixtures:

Commission Valuation shows:

Wood Poles, Account 319	4,971	Poles.
Iron Poles, Account 319	115	"
Wood Poles, Account 327	1,875	"
Iron Poles, Account 327	16	"
Total	6,977	Poles.

Eliminating a conduit item of $4,820.00 chargeable to Account 324 and an item for outlet boxes chargeable to Account 324
600 of $103.00, and miscellaneous items chargeable to Account 327 of $523.00, the Commission shows a total value for poles and fixtures (labor and material only) of $88,619.00.
This should be 92,991.00.

Underground Conduits.

Eliminating an item of trench which should be in Account 327 of $9,977.00 and an item of conduit which also belongs in Account 327 of $14,281.00, the Commission shows a balance under Account 320 of $647,493.00.
This should be 838,948.00.

Manholes, including appurtenances:

Commission shows a total for this item of $287,779.00.
This should be 324,534.00.

Pavement:

As shown by Commission this total is $368,732.00.
This should be 400,108.00.

Transformers & Devices.

Transformers:

The Commission valuation of transformers shown, $77,984.00.
This should be 85,639.00.

Meter Installation.

A. C. meters:

Commission shows 90¢ per meter.
This should be 1.05 per meter.

601 D. C. Meters:

Commission shows 90¢ per Meter.
This should be 1.15 " "

Electric Signs.

The Commission lists 22 signs at $2,914.00.
This should be 24 signs at 3,918.00.

Street & Park Lighting.

Total as listed by Commission under "Street and Park Lighting" $256,655

Items listed by Commission under "Underground Conduit":		
Conduit	$14,281	
Paving	41,333	
Trench	9,977	
Removing paving	4,208	
	69,799	69,799
Total Commission labor and material allowance..		$326,454
Low on Cable	19,202	
" Trench	3,377	
" Paving (Removing & Resurfacing)	15,593	
" Wire	3,808	
" Insulators	106	
" Brackets, Posts, Poles, Standards & Appurtenances	22,147	
Low on Miscellaneous	173	
Omitted Conduit on Walls, Bridges, etc.	3,685	
Omitted Stock lamps for public use	6,005	
Omitted Stock lamps for commercial use	5,012	
Omitted Poles, Posts and Standards	4,563	
Total to correct Commission Labor and Material	$83,671	83,671
Correct total Street & Park Ltg. Labor and Material.		$410,125

Respectfully submitted.

HAROLD ALMENT.
By DICKERSON.

602 Mr. Barbour: With a view of saving the time of this Commission, as well as the time of the witness with respect to matters with regard to which it seems to me we were not making any progress this morning, and subject to questions which have been left open to be answered by Mr. Pillsbury, about which he took a memorandum as we went along, I think that is all the cross-examination that I have of this witness at this time.

603 Redirect—Pillsbury:

The Chairman: In your direct examination you stated that there were a number of corrections that you wished to make in the report that you had prepared and submitted. I will ask you to make them now.

Mr. Pillsbury: I want to say that these are independent of the comparisons now being made as to quantities and so forth, between Mr. Almert's appraisal and our own. That comparison is not com-

plete and the results have not come to me, as yet, as I have already testified.

The first item is concrete as applied at the Bennings power house and substation No. 14 which adjoins. An error was made in this matter. The staff was instructed to use the price of various materials—not all things—but certain things—as delivered f. o. b. side track at the Bennings plant. This was done with respect to power plant equipment and so forth. The same instructions applied to concrete materials, just as was done, for instance, at the Chevy Chase plant of the Capital Traction Company. It seems now, in going back over the sheets, that, in error, instead of applying the price of concrete materials at the side track, wharf prices were applied, and since the haul was not included, that gave an entirely wrong result. That correction as to the Bennings Power plant and substation No. 14, including the contractor's percentage, amounts to $8,524.92. No such error was made anywhere else.

General costs applying to structures will of course be affected by this, and an addition should be made to general cost. The amount of that addition should be $1,928. So that the error amounts to $10,452.92.

The next item I have already referred to, but I gave it when I said I wasn't ready to give it and our computations had not quite been finished. On checking it up I find a little bit of an error. That should be $57,208.93. That refers to underground conduits and manholes, and refers not exactly to removal of obstructions, but refers to the added expense by reason of obstructions. As I have already stated, just as in the case of track, we keep those costs entirely separate, and as in the case of track, I intended to show it in the final report, largely because under certain theories of reproduction it would become an arbitrary matter, while the other costs are not. In the final compilation, through an oversight, those costs were not totaled up and added. Now, general costs applying to transmission and distribution of course are affected by that addition, and general costs are increased by reason of that addition, $11,314.

Mr. Barbour: Are those the general costs that aggregates 17 per cent?

Mr. Pillsbury: I do not remember, but whatever the aggregate that is the amount, strictly according to our general costs, which should be added to the $57,208.93. That is, $11,314, making a total—not a correction, but an unintentional omission made at the end—of $68,522.93.

I think I have already stated that upon review the contractors' percentage has been changed by me. The reason for that change is principally this, that the contractors' percentages, as derived, involved the same things that they now involve and were made before we had our grand totals. Having now our grand totals, and going back and reviewing them all and working out the actual dollars represented by those percentages to apply to actual construction, my best judgment is that they were too low. That is strictly a matter of my own and made strictly on my own volition as a matter of

justice. The contractors' percentage is changed to 17.5 per
604 cent and involves of itself $100,297.78. Now, of course our general costs are affected by this addition as well as by the other, and the correction to general costs amounts to $19,834, making that total addition $120,131.78.

I have already stated that the engineering and plant equipment, upon review, I deem too low to cover all the things that properly should be covered in the case at hand. Upon careful review I raise that figure $54,512. That of itself being general cost that is nothing to be added to it.

I have already stated that as to taxes there was a misunderstanding between the assessor and ourselves, and there is still a similar misunderstanding with respect to the distribution system, between the assessors and the gas company.

I wish to correct our taxes and our overheads by adding $15,411 as applying to our inventory division of transmission and distribution. That being an overhead or general cost there is nothing to be added to that.

In conjunction, purely as a matter which grows out of the change in contractor's percentage for transmission and distribution, since in our final report paving is set forth as a separate item, and in what I did give you as to transmission and distribution I excluded paving, there is no change in paving laid, but in paving removal, being a matter of excavation done by the contractor, upon which he gets a profit just the same as he does on any other excavation, that same increase in contractors' percentage applies, an increase from what we did have it to what we now have it, upon careful review, which adds $1,275.03, and the general costs of overhead reflected by that amounting to $170 more, the total as to that item of removal of paving being $1,445.03, making a grand total of additions, these additions applying to the final reproduction cost, as given on the last page of basis and conclusions over my signature, of $270,475.66.

Mr. Barbour: One of the alleged errors, called to the attention of the Commission in the letter of July 28, 1916, is an item of 1392 pounds of rails, which are priced at $6.68 per hundred pounds.

Mr. Pillsbury: I can only give the same answer that is that I haven't the formal report on that as yet.

Mr. Barbour: I thought you had looked at that particular item and satisfied *myself* that it was correct?

Mr. Pillsbury: I think I have*m* in a superficial way. I do understand that an error was made, but it has not been adjusted as yet.

605 Working Capital—Pillsbury.

Mr. Barbour: You do not wish to make any correction in your amount of allowance for working capital?

Mr. Pillsbury: No.

Mr. Barbour: Do you mean you desire to look into it further or that you are satisfied with it?

Mr. Pillsbury: I was satisfied with it when I first derived that amount, in the manner in which I have explained, and I have noth-

ing further on which to base any different conclusion. I have not looked into it further. I had no intention to do so at this time. If the Commission directs me to I will.

Mr. Barbour: You indicated that you could not reproduce the consideration which you followed, or reindicate——

Mr. Pillsbury (interrupting): I have stated that I could not go through all the mental processes and set them up, because a part of it is arbitrary: I mean by that that it is not the result of definite mathematical calculation. I stated that I read the testimony in a number of Commission cases, in which the matter of working capital was involved, that I studied various data from your company, and I stated the general process by which I arrived at the result. I stated that it was somewhat arbitrary.

Mr. Barbour: You were requested also to supply information as to the cost of making the inventories.

The Chairman: That will be readily ascertainable from the records that will be furnished, but is something about which Mr. Pillsbury would have no special knowledge. It will appear from the records, if it can be ascertained at all.

Mr. Barbour: Our memorandum shows that you also reserved for consideration and subsequent response some question as to the adjustment of costs on cables. Do you recall that?

Mr. Pillsbury: I thought that was strictly with reference to these differences that Mr. Almert is now considering. As I understand it, the corrections I made were entirely without reference to and independent of those letters * * * I understand that we are to look up all those things, and if possible we are to see where conclusions can be drawn between those different quantities, and so forth. The adjustments which I have made here are the adjustments to which I referred on direct examination in the beginning.

606 Piles—Pillsbury.

Mr. Barbour: Then with reference to the price of concrete piles, the piles used at the power plant at Bennings. I understand that you were to give us some data with regard to that.

Mr. Pillsbury: You merely asked me to look that up, and I did look it up as far as I could. All that I can say is that the price applied was obtained and applied by Mr. Walker, and was 95 cents. That is all the record shows. The actual cost as shown by an analysis of our account was $1.10. Mr. Walker had quotations from people on that. He took up the matter of piling with a number of local builders, under Mr. Minder's instructions but how he derived 95 cents I cannot tell from the record. $1.10 was the actual cost, as shown by our account analysis of the company's actual cost. I do not think he saw or had anything to do with that $1.10. All these analysis were not finished at that time.

607 Normal Prices—Pillsbury.

Mr. Barbour: I now would like to ask Mr. Pillsbury three or four general questions. Following the method you adopted to deter-

mine what you term normal prices on July 1, 1914, of copper, steel, iron and lead, would the prices as of the date of this hearing, if determined by the same method, be the same as those of July 1, 1914?

Mr. Pillsbury: No, I think not. When we adopted that date and adopted that method it was my belief that these prices, being normal prices, if correctly derived would be representative of normal prices at any time; but if we adopted just the same method now, on account of the long continuation of this heavy increase, we undoubtedly would have had higher prices as to fluctuating prices, and higher prices in some other cases. Eventually I think the prices will drop, but what final effect upon normal prices in the future this condition, which is an extreme one in the history of the world, will have, I cannot say.

Mr. Barbour: You have used in your statement of cost and reproduction what you term normal prices as of July 1, 1914, as to copper, steel, iron and lead, and actual prices as of that date as to other commodities. Is that correct?

Mr. Pillsbury: That is correct in general. I do not think, at just this moment, of any other prices which we arrived at in the same manner. There may have been a few other items, but I do not remember now specifically. In general that is correct.

And those commodities were selected for that purpose because they were the ones on which there was a large fluctuation, and they also represent very large commodities in this undertaking.

Mr. Barbour: Are you of the opinion that a responsible contractor, entering into a contract on the date of July 1, 1914, for the construction of this property of the Potomac Electric Power Company, as it then existed, could have obtained his materials at the price used by you?

Mr. Pillsbury: I cannot answer that and I will say that I do not think that follows one way or the other. Without evading it, if you will let me answer the question in this way, I think I will make myself clear. Take our normal prices, which were supposed to be normal prices over a complete cycle. If they had been prices taken at a peak period we would have had the same prices, or should have had the same prices, or if they had been prices taken at a period of greatest depression we would have had the same prices; but they would not have been the prices that the contractor would have paid at the time, by any means. Ours is a hypothetical case, not trying to arrive at the price a contractor would pay in a particular period, but merely normal prices. I think, if I make myself clear, that what the contractor actually would pay would be the actual current prices during the exact period of construction.

Mr. Barbour: You make it clear that you are not answering my question.

Mr. Pillsbury: Take, for illustration, the 15½ cents. That certainly would not be what he would have paid for that copper, because that wasn't the price on July 1, 1914, nor was it the average price over three years nor did it have any particular relationship

to those three years. It had relationship to a period of seven
608 years.

Witness cannot say that in his opinion a responsible contractor, entering into a contract of that date, for the construction of this property, could have obtained his materials at the prices used throughout.

I do not mean by that that he would have paid more but I mean that those would not have been the prices.

Witness does not know whether he would have paid more or less now and would not express an opinion on that offhand.

Mr. Barbour: Are you of the opinion that normal prices as of July 1, 1914, are normal prices as of the date of this hearing at the present time?

Mr. Pillsbury: I have just answered that, Mr. Barbour. I thought then that they would be, but this unparalleled catastrophe has changed conditions. If this war had been of two months duration and prices had gone right up accordingly and come right down again I do not think it would have changed the result at all as of now, but considering the length of time that these high prices have been maintained, I think there would have been a decided disruption in the matter of normal prices. I just stated that I do not know what the effect on the ultimate future is going to be.

Mr. Barbour: Do you believe that as of the date of this hearing the physical properties of this company could be reproduced for the figures named in your report, as changed by the alterations you have made today?

Mr. Pillsbury: No, I do not, because current prices would have to be paid. Again I want to qualify that. If you mean starting right now and a period of three years elapsing, I will say I do not know about it, because prices may drop tremendously within a few months, for all I know now; but so far as current prices are concerned, the contractor would have to pay those prices. If you mean he was placing his orders right now there can be but one answer to that—they would be higher.

(End of Mr. Pillsbury's testimony in chief.)

609 **Land.**

The reproduction cost of land devoted to electric operations as included in the original report of Mr. Pillsbury aggregated $433,792. These valuations were not made by Mr. Pillsbury personally but were made for him by Mr. Richards, the assessor of taxes for the District of Columbia, under orders of the Public Utilities Commission, that land—"be appraised by the District Assessor and his assistants, the amount as appears in each case, representing the normal price such as, in the opinion of the Assessor, would be paid by a willing buyer to a willing seller in a bona fide sale with no special inducements either to sell or buy." (Basis and Conclusions page 11, transcript page 565.)

Mr. Pillsbury and the assessor, however, omitted from their valuation a parcel described in 151/21 containing 24.56 acres known as Graceland Cemetery subsequently appraised by Mr. Richards at $160,490.

Mr. Almert's report valued the same property, including Graceland Cemetery, at $830,967.44, the detail of the valuation being shown in Table 21 of the Commission's opinion, as follows:

TABLE 21.

Comparison of Appraisements of Land.

Location.	Area.	Rate, Pillsbury report.	Appraisement, Pillsbury report.	Appraisement, Almert report.
Square 220 Square feet	3,852	$5.00	$19,260.00	$23,688.00
Square 259 do.	65,518	4.00	262,072.00	354,446.94
Square 431 do.	2,286	7.50	17,145.00	13,728.00
Square 518 do.	10,552	.75	7,914.00	12,663.60
Square 709 do.	18,374	1.35	24,805.00	31,424.00
Square 1176 do.	22,682	1.25	28,353.00	34,113.00
Square 1184 do.	39,286	.60	23,572.00	31,020.00
Square 1185 do.	48,138	.45	21,662.00	36,562.50
Square 2852 do.	6,000	.60	3,600.00	3,900.00
Square 2986 do.	17,831	.15	2,675.00	4,447.25
Parcel 169/9 Acres	12.63	1,800.00	22,734.00	57,508.15
Total as included in Pillsbury report			433,792.00	
Parcel 151/21 Acres	24.56	.....	160,490.00	227,466.00
Pillsbury Total			$594,282.00	
Total as included in Almert report				$830,967.44

610 Mr. Richards, the assessor, testified that he made an examination of the lands of the Potomac Electric Power Company devoted to its electric operations, for the purpose of ascertaining its value, at various times and several times, both in the general course of his assessment work during triennial period of assessment previous to the year 1914, and since at the request of the Commissioners, in order to determine their fair market value and placed on it the values stated in the above table which he in each instance thought to be a fair value;—"that as a general rule, in assessing property, a lot 100 feet deep has two-thirds of its value in the first 50 feet and one-third of its value in the other 50 feet."

That the valuation above is the value of land entirely and not of the improvements.

And his values are arrived at by comparing each particular lot with records of sales of that property and of other property in the same vicinity.

Speaking with particular reference to Lot 800 in Square 2986, the witness stated "that it is a piece of property on Georgia Avenue, east side, some six or seven hundred feet north of Shepherd Road. It has a depth of about 300 feet, and not many pieces of property around there have been sold at such a narrow frontage and such a great depth. It is a little bit difficult to size up a piece of property of that kind, and the two best indications of its value, I think, are shown on two appeals. One appeal was made on Parcel 101/6, which lies on the east side of Georgia Avenue and about 90 feet north of this Lot 800. * * * We made an assessment on a valuation of $6,000 per acre. The appeal says it is not worth more than $4,000 and that they obtained a loan of $3,000, which would indicate a valuation for house and improvements of $5,000. This appeal was signed on June 4, 1914. The rate of $4,000 per acre would be a little less than 10 cents per square foot. The Board has placed on this property 15 cents per square foot on 17,831 square feet, or $2,675.

Mr. Richards states that he has been assessor for the District since July, 1908; has been in the service of the District since November, 1891, as surveyor of the District part of the time and in charge of street extension part of the time. The most essential part of his present duty is to familiarize himself with real estate values in the District of Columbia.

At the conclusion of the direct examination of this witness, the following occurred:

Mr. Barbour: Now, Mr. Chairman, I move to exclude all of the testimony of this witness, upon the ground that his direct examination shows that he has taken into consideration elements and evidence which should not have been taken into consideration by him in arriving at his estimates of value. I move that the entire evidence of this witness be excluded, upon that ground. We cannot distinguish to what extent his judgment has been controlled by these elements which should not have been given consideration.

Commissioner Newman: Personally, I should like to have a little argument as to why they should not have been given consideration.

Mr. Barbour: It is just a violation of all rules of evidence and of

justice that a party to any proceeding should be governed or even prejudiced by evidence, a conglomeration of evidence, as the result of consideration of different elements, some of which should properly be considered and some of which should not properly be considered, when you cannot tell to what extent the ultimate determination at which he has arrived has been affected by consider-
611 ation of elements which should not have entered into the problem at all. If you consider elements which should not be considered, you will arrive at an erroneous conclusion.

Commissioner Newman: That is what I desire to know—what elements he has taken into consideration which he should not have taken into consideration.

Mr. Barbour: Statements of witnesses on appeal matters, in which he was interested, or on which he had peculiar sources of information as to what took place in those proceedings.

Commissioner Newman: I thought we had settled that.

Mr. Barbour: I say that has gone out. He is merely repeating those things, in substantiation of his evidence which has gone out; but his conclusion is based on those very things—the ultimate conclusion at which he has arrived and it is impossible for this Company or even for the Commission itself to tell to what extent, if any, his conclusion has been governed by those very considerations.

Mr. Syme: As to the only specific matter Mr. Richards testified to, which was in the nature of hearsay, the Commission has indicated that it will exclude from its consideration that testimony.

In view of Mr. Barbour's objections, I am going to ask him (the witness) whether or not these values he has testified to are, in his judgment, fair and correct values, based upon his knowledge of real estate values generally and of the sales that have been made, that he has testified to, as to each piece.

Mr. Richards: They are fair values, based on my knowledge of sales in the locality.

Mr. Barbour: And without reference to this matter that has been excluded by the Commission?

Mr. Richards: Yes.

Mr. Barbour: How do you know that that has had no influence on you, Mr. Richards? * * *

Mr. Richards: The only two cases I brought in I merely brought in as confirmatory of something else. That was my intention. My mind has been guided by sales, mostly, and methods of comparison.

Mr. Barbour: I desire a ruling on my objection.

Chairman Kutz: The objection is overruled.

Mr. Barbour: We save an exception to that ruling, Mr. Chairman; and, without waiving that exception, I will now cross examine.

On cross-examination, the witness stated that he has no personal knowledge of the area of the property as stated in his report, except so far as recorded in his office, and he has in every instance taken the records of his office as to the area and has applied his unit cost.

Mr. Barbour: Mr. Richards, in arriving at those values and judgments you applied the same rules and considerations that you apply in assessing property for taxation, did you not?

612 Mr. Richards: Yes.

Mr. Barbour: Governed by the same considerations?

Mr. Richards: Yes. That those considerations are "Average sales of property under fair conditions, where both the seller and purchaser are willing to the transaction." That he gave consideration to the special adaptability of property to special purposes to some extent. "For instance, if a large corner lot were purchased and it included seven or eight pieces of property, and after being purchased its adaptability is better than before by being joined together that way, we would consider that as a factor in arriving at its value, and assess that piece of property at a higher value than it was before. * * * I would say that the assessors are guided by average sales of property and do, in some instances, add a certain percentage for special usage.

But value is not appreciated by reason of the particular usage it may be put to, except instances he has just mentioned where several lots are thrown together, and they become more valuable on that account. He can give no instance where they have assessed property in the District for special or extraordinary purposes apart from its real estate value.

Mr. Bowen: So then it may be said in arriving at assessments in the District you do not undertake to give to property any value for the extraordinary or special use that it is put to?

Mr. Richards: I can put it in this way, that we do not give a value for any extraordinary use.

Mr. Barbour: You attem*tp* to apply, I suppose, the rule of a willing buyer and a willing seller?

Mr. Richards: We must, according to law.

Mr. Barbour: A buyer who desires to buy but does not have to buy and a seller who desires to sell but who does not have to sell?

Mr. Richards: Yes.

Mr. Barbour: Can you with fairness, apply that rule to a public service corporation, so far as its useful property is concerned, which it has to buy?

Objected to by Mr. Syme on the ground that it called for an opinion of the witness which is entirely outside of the basis on which he testified that he had been instructed to value this property.

Whereupon, after a discussion, the Chairman ruled as follows:

Chairman Kutz: On page 11, basis and conclusions, report on cost of reproduction value, this statement appears, that "By order of the Commission, land was appraised by the District Assessor and his assistants, the amount as appears in each case, representing the normal price such as, in the opinion of the Assessor, would be paid by a willing buyer to a willing seller in a bona fide sale with no special inducements either to sell or buy."

"The Commission feels that the work of the Assessor was
613 done in accordance with the order of the Commission, and it is the duty of the Commission to determine the question that is propounded and not a part of the duty of the witness. In other

words, while the witness has qualified as a real estate expert, he is not necessarily a public utilities expert."

The objection of the Corporation Counsel was sustained and an exception was reserved by the plaintiff.

On direct examination, the witness had stated that he had personal knowledge of the sales upon which he had based his testimony.

On cross-examination, he stated that he did not mean to say in having personal knowledge that he was in any way mixed up in the sale but merely that he had knowledge of the record of the sales. He stated that he did not know who made the sale and he does not know what it was made for or for what purpose; that he is going on the record and the sworn statement of the individuals in regard to the sales; that he is willing to accept such a statement as the figure of the sales. He must necessarily accept sworn statements of an individual.

Mr. Barbour: All that you can do, then, is to give this Commission why it was that you made your first answer.

Mr. Richards: The basis of our assessment.

Mr. Barbour: Now we move to exclude his evidence in chief on that score, Mr. Chairman, because it now develops that it is merely a method of getting hearsay into this record.

And following argument, the motion was overruled and an exception saved and the affidavit was admitted to the record over the objection and exception of counsel.

And the Commission thereupon took the position that it is entitled to consider any information in the records of the United States government or in the District of Columbia in connection with these proceedings.

The Commission excluded from its valuation the Graceland Cemetery tract and also Square 709 appraised in the Pillsbury report at $24,805, and in the Almert report at $31,424.

After making these exclusions the Commission on the evidence increased the Pillsbury total valuation of the remaining lots to the sum of $452,468, as per Table 22 of their opinion page 62 as follows:

614 TABLE 22.

Reproduction Cost of Land as Revised by the Commission.

Location	Commission appraisement.	Increase over Pillsbury report of Table 21.
Square 220	$19,260.00	.....
Square 259	262,072.00	.....
Square 431	17,145.00	.....
Square 518	7,914.00	.....
Square 709	.....	(1)
Square 1176	34,113.00	$5,760.00
Square 1184	29,464.50	5,892.50
Square 1185	36,103.50	14,441.50
Square 2852	3,600.00	.....
Square 2986	2,675.00	.....
Parcel 169/9	40,121.00	17,387.00
Account E-300, land devoted to electric operations	$452,468.00	$43,481.00
Deduction, square 709 eliminated		24,805.00
Net increase over total of land of Pillsbury report		$18,676.00

Mr. Ham, the president of the company, testified that the Graceland Cemetery tract was acquired for future use of the combined companies as a shop, carhouse, storehouse and storage yard in conjunction with the Washington Railway and Electric Company in view of the anticipated necessity of ultimately vacating their present office building and site at 14th and C streets, the Commission excluded the same upon the ground that it was not in present use; and in the same way excluded land in Square 709 because it was divided into two parts by the City & Suburban Railroad Company for its tracks, the Commission on this point saying:

"The Commission is of the opinion that these two pieces of land should not be included in the reproduction cost of property now used and useful for electric operations of respondent company, and they are accordingly excluded therefrom in the final summary by the Commission." (Opinion page 61.)

Mr. Almert's report of the valuation of this same property was based on appraisements made by Mr. H. Rozier Dulany and Mr. R. W. Beall, two well-known real estate dealers and experts of the City of Washington, who examined each lot separately and made their valuation as of July 1, 1916, upon the basis of market values.

Mr. Beall testified that all of the testimony given by him was the result of independent investigation on the part of Mr. Dulany and himself; that no officials of the Power Company were consulted and

that nobody went with them or helped them to make up their opinion; that their opinions were all made up and handed to the Power Company at the same time; that they didn't know what values the Public Utilities Commission had placed on this property until about a week before they had testified which was on July 18,
615 1916; that the company asked them to place a valuation on the property and wanted to know if they could place a valuation on some of them for the purpose for which they were now used; that they told them they could not do that but that they would place a valuation on the property just as a fair-minded business man would place on property used for fair and reasonable purposes and not for utility purposes; that he (Mr. Beall) knew the purpose the company wanted the valuation—for the Public Utilities Commission; that they (Mr. Beall and Mr. Richards) declined to put the valuation on this property for utilities purposes because they did not feel competent to do so, and when asked to explain the difference between property for industrial purposes and for utility purposes, the witness stated:

"There is a good deal of difference. An industrial plant could be located—a place of business—as one reason, at certain points. A utility company probably could not do that."

And by way of illustration, said:

"We did not feel that we could go into the question of how valuable that particular site is in Benning Road for utility purposes, but they could go into it for manufacturing purposes."

And in speaking of assessed value as compared with fair value said that their values are higher for the most part; and that valuing a property for the purposes of taxation is one thing, and valuing a property for the reasonable and fair uses to which it may be put is another thing; that he did not think he could express that in figures.

"Take that tract out there at Eastern Branch and Benning Road. The value of that piece of ground, if we take Mr. Richard's plan, will cover the—that assessment on that property, to a certain extent, would govern the assessment on all the other property round about, $1,800 an acre, all things being equal, area and the like.

"Of course, this property, having a value and a use different from the other property, is necessarily appraised higher. If you appraised that property higher in price than the adjoining property for taxation, just what the difference would be I am not prepared to answer. In other words, I think there is a difference between the value of a piece of property and its fair price for the uses to which it can be put and the valuation placed upon it by the assessors; * * * for the reason that an assessment on one property might be the means of causing other property to be assessed at the same price, when that other property did not have the same advantages. * * * In other words, where you assess all the ground lying out in this section along the Benning Road at the same price we have appraised this particular piece of property, that would be unfair. * * * The liability on the part of the office to change the assessment is one

reason. I mean to say the danger of that would be to take the ground at Eastern Branch and Benning Road and go anywhere around it and asssess that ground at 15 cents a square foot. That would not be fair, because it is not worth it. That would be one reason. That is one of my reasons for believing that there should be two valuations.

616 Dr. EDWARD W. BEMIS was introduced as a witness November 15, 1916, on behalf of the Commission.

He gave his name as Edward W. Bemis; residence 4500 Beacon street, Chicago, Ill.; office address, 1606 City Hall Square Building, Chicago, Ill., where he has resided since 1910; since which time his business has been advising cities, states and the National Government with regard to valuations and rates of public utilities, and in charge of some appraisals.

He is a graduate of Amherst College, and received the degree of Doctor of Philosophy at John- Hopkins University in 1905;

That he has been constantly engaged in utilities investigation since 1890. During the first ten years only intermittantly, probably on an average of one-sixth of his time, but for the last three years more than that.

Since 1890 he has devoted all of his time to either the management or investigation of public utilities.

That he was a teacher of political economy and history at Vanderbilt University for five years, ending with the summer of 1892; then for three years at the University of Chicago, ending with the summer of 1895; two years at the Kansas State Agricultural College at Manhattan, Kans., during the two years ending in the summer of 1899; that he had valued the Water Department of Cleveland when he was Superintendent, of which department he had charge for over 8 years ending with the close of 1909.

He supervised the valuations of the Dallas electric light, street railway and gas properties.

Also made some study with regard to the water works of the private water company at Des Moines, Iowa.

He has testified in a great many rate cases involving valuations and the study of the financial history of the Company, such as, for example, the Consolidated Gas Case in New York in 1906 and 1907; the Telephone Company of Chicago in which he suggested the rates. He suggested most of the rates now in force in Greater New York.

He testified in gas cases for the Cities of Boston, Syracuse and Buffalo, N. Y., before Commissions and sometimes before courts.

He testified in the Haverhill Gas case, and qualified as an expert on valuations.

He made a report but did not testify in the Westchester County — three or four years ago.

He was employed by the State Public Service Commission of Maryland in the Gas and Electric Light case of Baltimore about the same time; by the City of Passaic, N. J., in a gas case; thinks Paterson and Passaic were united in that employment.

He was employed by the Street Railway Commission of Detroit

about two years ago to make an appraisal of the street railways of Detroit.

Also employed by the cities of St. Paul and Minneapolis in a similar way.

Also Mason City, Iowa. In Cedar Rapids, Iowa, in connection with gas. At Evansville, Ind., and Springfield, Ill., in gas cases.

Now in charge of an investigation and appraisal of gas properties in Chicago belonging to the People's Gas Light & Coke Company, which has control of all the gas sold in the City of Chicago.

Has been in other cases.

In his earlier cases valuations were made by others, such as Mr. Marks where he was more directly in charge of the accounting
617 and the general theories of rate-making and theories of valuations. Later, he had more immediate charge.

He was on the advisory board of the Interstate Commerce Commission, advising with regard to methods of valuation of all the railroad and telegraph properties of the country.

Before taking up this line of work he made special studies of economics; in Amherst he had second honors in mathematics. He has always followed engineering literature, but his chief interests were in political economy. He came more directly in touch with the practical side when he was in charge of the Water Department, City of Cleveland. Then he was deputy water commissioner for nine months of the Department of Water Supply, Gas and Electricity of New York City under Mayor Gaynor.

He devoted a great deal of time to keeping in touch with that literature, reading the decisions of commissions and courts; discussions of societies that took up those subjects. Feels fairly familiar with the literature on that subject.

He was permitted to testify as an expert in all cases in which he testified. He has testified before the different state commissions on this subject, and the state courts.

In 1914, he was employed by the Public Utilities Commission of the District of Columbia as Director of the Valuation Work, in charge of it latterly. His employment commenced May, 1914.

To meet the requirements of that work, he read the law that appeared to concern itself with this work, and found in the law certain requirements calling for information that was to be given to the Commission in Paragraph 6 of the law creating the Public Utilities Commission, passed March 4, 1913. He found that Paragraph 6 called for the Commission's ascertaining the amount of money expended in the construction and equipment of every public utility, including the amount of money expended to procure any right of way; also the amount of money it would require to secure the right of way, reconstruct the road bed, tracks, depots, cars, conduits, subways, poles, wires, switchboards, exchanges * * * and any other property or instrument not included in the foregoing enumeration used in or useful to the business of such public utility, and to replace all the physical properties belonging to the public utility. It shall ascertain the outstanding stock, bonds, debentures and indebtedness, and the amount, respectively, thereof, the date when

issued, to whom issued, to whom sold, the price paid in cash, property, or labor therefor, what disposition was made of the proceeds, by whom the indebtedness is held, so far as ascertainable, the amount purporting to be due thereon, the floating indebtedness of the public utility, the credits due the public utility, other property on hand belonging to it, the judicial or other sales of said public utility, its property or franchises, and the amounts purporting to have been paid, and in what manner paid therefor, and the taxes paid thereon.

That paragraph called for two classes of information as it seemed to him, information that would be helpful in determining the fair value of the property, and other information which did not have much bearing on it, as, for example, "by whom the indebtedness is held," "the salaries paid," "the maximum hours of continuous service," and there are a few other matters which appeared to him would be appropriate matters of information, but not necessarily concerned with valuation work. "I did not find the word "valuation" in that paragraph at all. That paragraph appeared to call for information, as stated here, which was to be reported annually to Congress.

Paragraph 7 was the only paragraph in which the word "valuation" or "value" occurred, and that was a short paragraph of one sentence, which reads:

"That the Commission shall value the property of every public utility within the District of Columbia, actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation."

618 Before being employed he had an oral conference with the Commission in which he was asked to take charge of securing what was to be known as the "fair value of the property" or data that would help to determine a fair value. He understood the Commission was to determine that itself, but he was asked to present to them such data as would help them to determine a fair value of the property. He did not understand that he was to secure all the data called for in Paragraph 6, but that they secured some of that in other ways and reported it directly to Congress; that he undertook to secure data that would determine the fair value of the property, not the value of the property. I make a great distinction between those two. The value of the property is determined largely by its present and prospective earnings. That is largely reflected by the stock market. That is largely determined by the rates fixed by the Commission itself. The Commission largely makes the value in determining earnings or rates. It would be reasoning in a circle to go to work to determine value, and I do not know of any court that has ever done it, or ordered it done; but the "fair value" was what I sought to get.

I did not seek to determine the value which I find to be in every case understood in the business world among economists what anything will sell for, but the fair value. The fair value, which was what I sought to determine, was the elements usually taken into account by commissions and courts, such as the cost of reproduction.

He was approaching this question of fair value not from the con-

demnation for purchase but from a rate-making standpoint, and also from the standpoint that it was taken when no special purpose was assigned. He was pursuing the policy that is being pursued today by the Interstate Commerce Commission in the valuation of the railroads and telegraph companies, where the Act does not specify whether it is for rate-making or purchase, and it is supposed it may ultimately be used for both purposes, but primarily, perhaps, for rate-making; that he arranged to have the reproduction cost ascertained of the physical property now in use for public utility purposes; that he determined to arrange his plans, or planned to have that as one element to be secured, that is, the reproduction cost new of the physical property now in use for public utility purposes of the Potomac Electric Power Company.

Another element was the depreciation in this property now in use. Another element was the consideration of the expenses that might precede construction in a reproduction theory and those that might follow construction in a reproduction theory. Under the first would be organization and promotion; certain legal expenses and the financing, perhaps, as far as any discounts might be concerned in securing the money. The construction or reproduction coming second, as a second chapter, assumes the money is raised, that the company has a franchise, has been incorporated, and then proceeds to consider what it would cost to reconstruct or reproduce the property.

The third chapter or section of the work is as I just suggested, namely, what expenses might follow the completion of the construction, such as the soliciting, canvassing and securing business, and any possible loss or deficits while that was being done, and which often are classed under the name of "going value."

Those three chapters, then, of "organization," "construction" and "going value," I consider the three chapters. I decided they should be worked out from the engineering standpoint and the economic standpoint; then that the accountants at the same time should seek to determine the same elements, so far as they could find data on the books and in other records of the companies involved.

He recommended the selection by the Commission of Mr. Pillsbury to take charge of the second chapter of the reproduction, that is, the cost of construction and the depreciation. He was selected for that purpose. He recommended the selection of Mr. Sangster to take charge of the entire accounting work, the study of the history of the investment and the cost of the property now in use, so far as it could be found on the books of the company. I reserved to myself the consideration of the first and last chapters, that is, the "organization" and the "going value," and certain comparisons that might be instituted with respect to these methods.

619 All of the designated work was done with his bureau under his general direction, and they made an investigation of the Potomac Electric Power Company which investigations were the subjects of report to him and which are the same reports that have been introduced in evidence here subject to the objection of counsel on the other side.

He has read a great deal of Mr. Pillsbury's report, but not every

page of detail; but is familiar with it, and he has read that portion of the reproduction report designated "Basis and Conclusion" and is acquainted with the matters and things set forth on page II with reference to authorization and purpose, and the account of the date of the determination of the valuation; the organization of the companies set forth therein which will take you down to "Basis and Procedure" on page VIII; that he was familiar with the work of these bureaus was approached and done in the manner set forth in the pages indicated. While he was not present at all of the work he was in frequent touch with it and in frequent touch with Mr. Pillsbury, and has every reason to believe that it is a correct statement.

After having stated, commencing on page XVIII of Basis and Conclusions under the head of Cost of Reproduction, Period of Construction, Organization for Construction, Engineering, Contractors' Profit; Contractors' Percentage, Identical Property, Topographical and Physical Conditions and, Paving Cost, and asked if in his opinion as an expert on the subject that it was a fair and proper theory and basis on which this reproduction should have been laid, replied:

I approve the methods, and believe that they are proper ones. There is some question in my mind as to whether one or two parts of the investigation need to be made in view of court decisions. I refer particularly to the effort to determine the cost on the reproduction theory of cutting through pavement and restoring it again. That is absolutely a logical part of the reproduction theory, but as he understands court decisions have rendered it unnecessary.

In reaching his conclusion he not only read court decisions but all other literature that was obtainable on the subject as far as he had time and pretty nearly as far as it was humanly possible adhering to the question, and not going beyond it to the question of depreciation he examined the report made by Mr. Pillsbury.

Turning to page XXXII of "Basis and Conclusions" and confining himself to the cost of reproduction as set forth in the second column against the items of the first column, from an examination of the report he believes the reproduction cost as therein set forth is a fair and reasonable reproduction cost of the Potomac Electric Power Company such as is covered by the report, subject to certain slight changes that Mr. Pillsbury has made within the last two or three days and which he had before him in typewritten form for distribution here, either now or a few minutes later.

In his opinion the definition given in this report of "depreciation," "accrued depreciation" and "annual depreciation" are correctly defined in the report and that the calculation of the annual amount of annuity, which, on a 4 per cent sinking fund basis, would provide for renewals, is a correct method of ascertaining the same, and in his opinion the statements on page XXVI under the heading "Percent Remaining," "Annual Depreciation Per Cent," "Annual Depreciation Amount," "Accrued Depreciation," "Reproduction Cost Less Depreciation," "Depreciation of Emergency Power

Plant," is a correct method of treatment of these various topics. The same is true of the general costs as set forth on page XXIX.

The sinking fund method of caring for depreciation is a correct statement. He prefers a straight line method himself. Either one, applied properly, as is done here, is just and fair to all concerned, but the straight line method is simpler and more in harmony with the existing practice.

The witness has looked into "Working Capital" "Materials and Supplies" and considers it a correct treatment of the subject.

620 There is some question as to the allowance for property extensions, but there is much to be said on either side. He thinks that taking one-eighth of the annual operating expenses is the method followed by himself many times. He would not include the taxes in operating expenses for that purpose.

Mr. Syme: I want to see if there are any other elements of value besides those that are set forth here that Dr. Bemis wants to testify with regard to. As I understand him, this report was confined to certain reproduction of physical property. It did not take into consideration all of the elements of value. I want to ask him as to each one of these, and I am going to ask him if there is any other possible omission or possible element of value that, in his judgment, should be considered in this reproduction cost that is not set forth there, that is, what he might call "possible omissions." I want to cover every element of value that he can testify with regard to.

Dr. Bemis: There is a possibility in my mind that these items do not include certain elements often included as going value, but I divide the whole investigation into three chapters, preliminary costs, construction and costs subsequent to construction, and these seem to be in the nature of preliminary costs. It is possible that one or two of them might be interpreted as being broader than that, but I think the question of developing property as an instrument of going value may not be included here. These certainly include all other elements that I think of not covered by the construction.

621 Organization and Promotion—Dr. Bemis.

Mr. Syme: In this reproduction cost which we are considering now, Doctor, should organization be considered?

Dr. Bemis: I think so. * * * I would include organization and promotion as the broad terms for including elements here mentioned, with the exception of franchises, patent rights, land in other departments and property without the District limits; but the other elements there included can be or are included, in my mind, under the general terms of "Organization" and "Promotion." They are covered by the I. C. C. accounts as follows: E-304, "Other Intangible Electric Capital"; Account E-343, "Other Intangible Capital in Other Departments." Perhaps those cover what I would generally class under "Organization" and "Promotion"; and "Costs

of Promoting and Financing Only," Account E-301, Oh, yes, I would include that.

Mr. Syme: From your study of the Company as to the items which should be allowed, did you find any basis for an allowance of these items of which you have last spoken, that is, "Organization" and "Promotion?"

Dr. Bemis: It is one of the hardest problems to decide, and I have fixed upon the value of $75,000 outside of th-se other items of Patents and Fr*na*chises.

He thinks that a fair allowance for those elements of cost.

I was informed that $2,400 was the incorporation fee, and that was included.

622 Franchises—Dr. Bemis.

Asked what in his opinion should be allowed for franchises, Dr. Bemis replied—"Whatever in a reproduction cost would be demanded; in the actual cost, what has been obtained by the public for these rights known as franchises granted to a company to do business in the District. I have searched for evidence that money was paid. I have found none. I have gone to the accountants for such information. I do not believe money would be required today. The tendency is against money payments for franchises to a city or district."

That matter in the mind of the witness would be controlled by the method in which franchises were obtained in different jurisdictions.

"I believe nothing should be allowed for franchises, because nothing has been paid for them in the actual cost or recorded cost."

Commissioner Newman: You mean to the Government?

Dr. Bemis: Yes; and I do not believe anything would be demanded in a reproduction cost.

Mr. Syme: By "franchise" I understand you to mean the right of the public user of the street, for a quasi-public purpose?

Dr. Bemis: An allowance for legal expenses for the preliminary work of organization and promotion was included in my $75,000. Other legal expenses are included in construction cost, which have already been put in evidence by Mr. Pillsbury.

623 Cost of Financing—Bemis.

Mr. Syme: What, if any, allowance, Doctor, should be made for financing?

Dr. Bemis: In a reproduction cost the prospect of discount and brokerage charges would have to be considered, and with respect to the probable payment in view of the prospects of the business, its profits, and so forth, in the historical method I have studied the discounts actually recorded and reported by Mr. Sangster; and in the case of a company of any age I consider that they should be amortized as out of earnings, and not included in the historical cost, provided the company has had earnings to do it. That is

a matter to be considered later. In the reproduction cost there would be some discount required, possibly, and some brokerage charges, in an immediate reproduction cost such as this contemplates; but in view of the fact that the company has been in existence a long time, my understanding of such cases is that none would be allowed in this case. Therefore, it is like paving cut through by a company, that would be cut through in a reproduction cost, but which, as a matter of fact, was not cut through in the original construction, but was put down by the public after conduits were laid. I exclude it, not because it is not an original part of the reproduction cost, for I think it is, but because it appears to me to be an element that in this case would not be allowed for in determining the fair value by courts and commissions.

Chairman Kutz: What is your judgment as to the propriety of making an allowance for discount on bonds, in determining the true cost of reproduction in this case?

Dr. Bemis: I think it should not be allowed. Assuming that the company was comparatively a new company, perhaps not over five years old, I think the actual discount should be allowed. The discount should be as rapidly amortized as the earnings permit it.

The witness was not guessing at the action of the Commission; his answer was based on his general understanding of the procedure of courts and commissions.

The witness said he had no information as to what other intangible electrical capital could be and made no allowance for it.

He had no information of any land in other departments used and useful for public utility purposes, and therefore made no allowance for it; as he did franchises in other departments for the same reason.

As to patent rights in other departments he made no allowance.

He had no information as to tangible property in other departments and allowed nothing for it.

Under Account E-301, cost of promoting and organization, he considered the following additions and reductions in the reproduction up to date. An addition for organization and promotion of $75,000; a possible addition of property not within the District, but which is covered by the accounting force, and which I have referred to, as given me by Mr. Kappeyne, of $492,225, and some additions that Mr. Pillsbury has tentatively worked out, which have also been referred to this morning, totaling $270,575.66.

First, there were $75,000 for organization and promotion; $492,-
225 for property outside the District, used for electric light purposes, as estimated by Mr. Kappeyne; additions made by
624 Mr. Pillsbury tentatively and subject to further revision $270,575.66.

That makes a total, up to that point, of $837,800.66, though I do not assume that this Commission has jurisdiction over property outside of the District, but I am only bringing this in as part of the entire property that, perhaps, in any comparison with the accounting information should be included. Of course, Mr. Pills-

bury's addition should be included in that, the $270,575.66 and the $75,000 for organization and promotion.

625 Great Falls Power Site—Bemis.

There is another element of property, which I have seen in the record several times, which is the Great Falls Power site. I have not had any opportunity—at least, I have had no information as to that, further than the existence of such a site, unused, acquired in 1912, I believe, and the record reveals the giving of stock, one million dollars of stock, as I recall the record, for that site. I have only information bearing on that that has come from the attorney in this case, that $120,000 is the cost, as shown by another record, not in this case.

Which statement, being objected to, Mr. Syme, the counsel, said: I want to say there that that is simply a matter of recollection on my part, and the record will be put in as contained in a former hearing, in which the question of the cost of the Great Falls power plant was gone into before the Commission.

Dr. Bemis: I only mention it to show that I have not ignored the fact that there is such property, except that it is not in use, but is not in the District.

And the statement of the witness as to the alleged original cost of this property was stricken from the record.

Dr. Bemis: Leaving out that Great Falls property, there is a total addition of $837,800.66.

The witness did not think that the cost of the physical property outside of the District should be included in determining fair value of the property of the Potomac Electric Power Company used and useful in the furnishing of power in the District of Columbia, but in excluding it one must also exclude from the cost as set up by the accountants the cost of that property and any financial history connected with it.

"I believe it very important for the Commission to be able to compare the recorded costs set up on the books of the Company, of the property within the District with the estimated reproduction cost. Not finding it practicable to do that, and not finding that very much effect would be produced on the whole situation by taking the property outside the District, which was less than half a million dollars, and then keeping the accounts as they were, I took the latter method. Legally, I suppose, the more correct method would be to exclude both the investment outside the District and the reproduction estimate of the property outside the District."

There are some deductions which the witness would make from Mr. Pillsbury's reproduction estimate, as partial setoff against these additions.

The first is that part of the paving which the company did not have to cut through in construction, but which was laid over the conduits afterwards. Logically it is all part of the reproduction theory, but has been rejected in so many important cases that he had deducted it in his estimate.

626 Deductions for Paving—Bemis.

In order to determine how much that was, I made a study (the only study I could make) of what the records show as to the amount and cost of the paving that was cut through, and it is given with respect to the paving over the conduits. I did not find the record as to paving over services. But with respect to paving over conduits I found that the actual cost recorded is a little less than half of the total given by Mr. Pillsbury as his estimate of paving over the conduits. I, therefore, assumed that the same would apply to the services, although in the case of services a little less than half, or an average of about one-half combined, would apply; and making proper allowance for overhead charges, I reached a figure of $271,098 as that portion of the paving which was, in my judgment, no cost to the company in the actual installation of its plant.

627 Interest and Taxes During Construction—Bemis.

I also deducted certain allowances for overhead charges in the shape of interest and taxes during construction, engineering and superintendence on land.

I thus reached $43,915, on my belief that it was covered by the decision in the Minnesota Rate case, in the United States Supreme Court, that all overheads on land were to be excluded in an appraisal case.

My figures were taken entirely from the adjusted reproduction estimates of Mr. Pillsbury, and more details I can give a little later as to just how I reached those precise figures.

It is based on the table on page XXI, as to the cost of the reproduction of the paving, with a few additions that are covered in a table he had introduced that morning.

The figure is given at the bottom of the fifth column of figures, under re-surfacing, as $209,800.20. That was the actual cost of all the paving that Mr. Sangster reports as found upon the books of the company.

Now, Mr. Pillsbury's base cost of the paving over the conduits was $419,352.72, and over the services $74,965.28, or a total of $494,318. To this certain general charges were added.

Now, take the conduits alone and add the allowance for omissions and contingencies, which in the record cost or in the cost, if there are any, is $8,386.65, and this would bring a total of $427,719.37, which is Mr. Pillsbury's estimate of totals over conduits, after adding in the 2 per cent for omissions and contingencies, or making a total, even without general overhead charges, of paving over conduits of $427,719.37; and that is more than twice as much as the allowance for re-surfacing over conduits given on the books and records of the company, as shown by Mr. Sangster, Section 8, Exhibit A, of his report, namely, $209,800.20.

Finding that to be the situation with regard to paving over conduits, the witness estimated that substantially the same situation in

a slightly less degree was true of paving over services; in other words, that the exclusion of one-half of the estimated reproduction cost probably fairly represents the cost or even the reproduction cost of the paving actually cut through in the laying of these conduits.

The Doctor has read the testimony of both Mr. Sangster and Mr. Pillsbury given before the Commission and is familiar with them though he has read them somewhat hurriedly.

"One-half of all the paving, with certain allowances for overhead charges, is reached in this way: The reproduction estimate of Mr. Pillsbury as to all the paving over conduits and services was $494,318. Half of that is $247,159.

Then there should be added a certain amount of general charges. If I cut off one-half of the base, I must cut off certain of the overhead charges, namely, omissions and contingencies, 2 per cent on the base only; engineering and superintendence, .5 of 1 per cent on the base only; interest during construction of 7 per cent on the base, plus the omissions and contingencies. This made a total of 9.6857 per cent. This percentage of the above $247,159 is $23,939.08. That is the rejected portion of the general charges on paving. $247,159 is the rejected one-half of the base cost. The two make the $271,098 which I gave a few minutes ago.

The witness reached the deduction on overhead on lands. He did not reject all the overheads on land, but 10.1235 per cent of the $58,447; that is, in dollars, $43,915. The amount that was left in the land was certain elements that we calculated in dollars rather than in percentages and would have been allowed by Mr. Pillsbury, independent of any valuation of the land.

Therefore, the witness has a total reduction from Mr. Pillsbury's report of $315,013 from paving and land, while there is an addition that he has made since his testimony of $270,575.66 and $75,000 for organization and promotion and the $492,225, if that is to be included at all, of property outside of the District, there is a
628 net addition of $522,787.66.

629 Dr. Bemis' Idea of Value.

Value is an economic question. Value is purely an economic term, and the questions that enter into value are related, of course, to both cost and reproduction cost and earnings. The largest element in all those cases is earnings, present and prospective.

Now by "fair value" I mean considered with reference to the purposes for which we have this. A fair value is very distinct from value, in my mind, and it excludes entirely the subject of earnings, largely determines what a thing will sell for, and what a thing will sell for is its value, but its fair value is very different. That is what it ought to be. There is something implied, in my mind, in the nature of public policy and equity.

Fair value and the relation of the engineering feature to it is that amount of property which in view of its history and its cost and condition is a fair and equitable sum on which to base rates of charge. I have in mind the idea that was expressed by Mr. Stevens,

Chairman of the Second District, Buffalo, New York, Commission, where he said the amount of proper- is far better.

* * * * * * *

The engineering feature determines the inventory of the property now there and its condition as regards depreciation. It throws light on what it would cost to reproduce at wholesale today, and is a check upon the evidence that you may have of the actual cost. I consider the actual cost as the more important, but the reproduction cost has a bearing and may direct our attention to omitted items and to questions as to whether the recorded cost has been perhaps an overcharge or an undercharge, and then the engineering work, the engineering side, may well be employed in estimating the actual cost that was probably incurred, if the records are lacking with regard to some period. For example, if you had the exact records of cost of most of the property, but of a little of the property you did not have, but we know substantially the time when it was constructed, then the approximate reasonable cost at the time it was constructed would be largely an engineering proposition.

630 Depreciation—Bemis.

Outside of what appears in the report, this witness has nothing to add as his own opinion and judgment as to the method of arriving at fair depreciation. If a company has not had a sufficient return or earning by a fair return on the cost of the property from time to time to take care of depreciation, at the same time it is doubtful in my mind whether the full depreciation should be written off. This company has had such a return from the beginning.

The witness did investigate the earnings of this company from the time it started in business.

Mr. Sangster, at the request of the witness, prepared for him the statement of the earnings of the company from the beginning which he had before him while testifying.

631 Development Cost—Bemis.

Asked if there was anything further he would like to testify with reference to Mr. Pillsbury's report, the witness replied:

The third chapter in a reproduction I had stated this morning to be as sometimes called the development expense, and more often going value, namely, it includes the cost of soliciting and canvassing for new business, and includes *the cost of soliciting and canvassing for new business, and includes* deficits in the beginning of operation, and that whole thing can be grouped together under the term of "going value," which is an economic more than an engineering question, and I had reserved treatment of that to the end, after we had gone through the accounting work.

The original cost of the physical property is an element we are speaking of now in determining the fair value of the property, and is an element in determining the fair value of the property now being considered in accordance with paragraph 7.

Mr. Sangster was the chief of that bureau when he made a report which the witness had examined, and so far as he was able to determine it was the correct method of determining historical value.

The witness has no personal information as to the truth of the statements.

Referring to the preliminary analysis of the book value of the property of the company as at July 1, 1914, and a comparison thereof with the corresponding position at or about the date of the inception of the company, followed by the condensed comparative value sheet extending over pages 4 and 5,

Dr. Bemis, says:

Now, these first two pages I have rearranged without altering the substance of it, but in a way that might be more useful for my purposes, in 2½ pages here which was read into the record as follows:

"The balance sheet of the company, as of June 30, 1914, showed assets of $14,110,746.52, which were divided into plant and equipment of $11,529,173.67, and into miscellaneous items aggregating $2,581,572.85 (Accountant's Report, Section XVII, Exhibit "A."

Assets Other Than Plant and Property.

"These miscellaneous items are listed as follows:

1.	Construction in process	1,586.38
2.	Property abandoned	39,869.46
3.	Investments	1,138,855.80
4.	Materials and supplies	128,893.08
5.	Bills receivable	69,555.44
6	Accounts receivable	264,796.99
7.	Cash and deposits	264,275.89
8.	Unamortized debt, discounts and expense	219,576.56
9.	Prepaid insurance, etc	11,228.36
10.	Sinking fund	442,934.89
	Total	$2,581,572.85

"Taking up these items in order, construction in process might be included in plant and equipment, but is so small an item, being less than 1-50 of 1% of the plant and equipment, that it may be ignored. Property abandoned (That is the second item.) represents a cost to the company which should be amortized out of earnings, but is not an existing asset. The same is true of the eighth item,

unamortized debt, discounts and expense, with this possible difference, that property abandoned should be amortized out of past earnings, while the unamortized debt, discount and expense should be amortized out of both past and future earnings, so as to be entirely covered during the life of the debt for which discount or expense was incurred.

"Data produced by Mr. Sangster from his working papers show that past earnings have been charged with their due proportion of discount and other expenses connected with this account and that the figure given in the assets is entirely a burden upon future earnings.

"The large item designated as investment consists of five items:

"1. Payment of Stock of $1,000,000.00 to the controlling company—The Washington Railway and Electric Company, May 31, 1912, for two-thirds interest in a power site at Great Falls. There is no evidence that the company will utilize this site, or that it can legally do so.

"2. Purchase of a cemetery of about twenty-five acres, May 31, 1912, known as Graceland Cemetery, near 15th street and "H" street, N. E., for a net price of $116,155.80. There is no
633 evidence that this will be of any use for electric lighting and power.

"3. Purchases, December 31, 1912, of $20,000.00 of 5% bonds of the Washington and Rockville Railway Company—a suburban line controlled like the Potomac by the Washington Railway and Electric Company. This certainly does not represent an asset of the Potomac on which electric consumers should pay a return.

"4. Purchase, December 31, 1909, of shares in testing laboratories for $2,700.00. This item aggregating less than one-fourth of one per cent of the total investment, now under consideration, does not appear to have any value today.

"The entire $1,138,855.80 represents an investment not in use, or likely to be used for public utility purposes, and should be ignored.

"Items 4, 5, 6, and 7, representing material and supplies and other cash working capital, should be in part counterbalanced by bills and accounts payable, and by other consideration presented in the Accountant's Report (Pages 16-19). In place of these items there should be set up, as will be elsewhere done, a substitute item for material and supplies and for cash working capital of $260,000.00.

"There remain items 9 and 10. Item 9 of prepaid insurance represents money already paid out of operating expenses, and item 10 sinking fund represents investments in the bonds of the company and of the Washington Railway. All of the property covered by these bonds is elsewhere considered. These items should be ignored.

"Of the entire ten items, aggregating $2,581,572.85, only $260,000.00 of working capital should be set up as an asset on which the company is entitled to earn a return today, while the cost of property abandoned $39,869.46 should be written out of the gross income of the past before determining the true income."

A motion was made to exclude this statement as an unsupported conclusion on which the Chairman ruled:

While The Commission feels that the statement in the paragraph on the first page has not been supported by proof, evidence in support of that statement will be introduced, and subject to the understanding that evidence will be introduced in support of that statement in the paragraph which I have just referred to, the action of counsel, for the company is overruled. An exception was noted to the ruling.

The witness added that he had two other pages giving deductions in plant and property, tabulating the deductions that Mr. Sangster had made into two classes, those which he termed "deductions from assets that should be accompanied with corresponding deductions from gross income" because the property is not now in existence, or for other causes, yet they were expenses legitimately incurred, and if they are to be written off it must be shown that there was income sufficient to provide for writing them off. The other deductions which Mr. Sangster makes he puts into another classification "deductions from nomi-al assets with no corresponding deductions from gross income". That includes rights and franchises which one company paid to another, and which should never be paid for out of income.

Witness stated he was just classifying deductions made by Mr. Sangster and in adding to deductions made by him.

The witness testified that in his judgment the Sangster method of procedure in ascertaining from the books of the company or from any other source the cost of physical property of the Potomac Electric Power Company now in existence and used and useful for the convenience of the public in the District of Columbia was correct.

And turning to page 11 of the Sangster report and the schedule there, he stated that the first item is the cost of equipment as per table 8, page 9, which is given as $862,144.17; that certain deductions had been made, and that in the following analysis of plant and equipment accounts, there is a total expenditure of $7,869,655.54, which amount is carried over to page 15, and after that certain deductions are made which are set forth on page 15.

He stated he had analyzed that difference between the first line and the last line of the table on page 15, and divided those
634 into two classes, one class being expenses properly to be charged against income and excluded if income has been sufficient to amortize them; the other class is never chargeable against income, but consisting purely of payments by one company to another company for franchise rights.

He read this table into the record as follows:

"Deductions from Plant and Property.

"The accountants deduct from the $11,529,173.67 of plant and property several items aggregating $3,659,518.33 (Accountant's Re-

port, pages 13-15). These deductions are of two kinds—those which represent a real cost to the company in the past and which should be deducted from the gross income of the past, and secondly other items which represent no cost to the property, or to the original investors, as such, but merely payments for franchises made by one company to another at the time of the various consolidations. In reaching any fair value of the Potomac *Potomac* Electric Power Company, such items should be ignored.

"The following table gives both kinds of deductions from assets:

"Deductions from Assets That Should be Accompanied with Corresponding Deductions from Gross Income.

Loss on property sold, scrapped or abandoned less amount charged to operation (Ac. R. page 15)	$388,953.85
Organization and financial expense of Potomac Electric Power Company 1894-8 (Ac. R. pages 6 & 11)	682,786.53
Interest charged to cable account during 1899 (Ac. R. pages 11 and 15)	2,962.65
Interest on $650,000.00 5% bonds held by Washington Railway and Electric Company, settled in 1903 (pages 5 & 15)	132,500.00
Discount on $280,000.00 of 4½% bonds sold to Washington Railway and Electric Company in 1903 (pages 5 & 15)	56,323.56
Expenses connected with consolidated mortgage and a contract for car supply 1901-6 (pages 11-15)	10,651.41
"Total	$1,274,178.00"

Those represent items which the Company had the right to expect from the public enough money to pay for, or they should be written off, but if the company has had income sufficient to pay a fair return on the investment and at the same time write them off, they should be written off. The question of whether the company has had such income is a question which I will take up a little later. There is no fault with the expenses here; it is only how they should be treated by the Company if it has had money enough to write them off.

Then comes another page which I will read:

635 *"Deductions from Nominal Assets with no Corresponding Deductions from Gross Income.*

"Rights and franchises of U. S. Electric Lighting Company of New York, 1882 (pages 11 and 15)	$200,000.00
"Franchises of Potomac Light and Power Company, 1896 (pages 8 and 15)	208,189.50
"Franchises of U. S. Electric Lighting Company, 1902, (pages 7, 15)	1,977,150.63
Total	$2,385,340.13

"Total of all deductions from plant and property (which simply means this page and the other).. $3,659,518.13
"Remaining assets of plant and property (pages 13-14) ..... $7,869,655.54"

The witness then continues:

I then proceeded to consider whether the company has had an income sufficient to enable it to write off that first page, that is, the first set of deductions, aggregating $1,274,178, and whether it has had any losses not made up by later gains or in any other way as a claim for going value.

Mr. Barbour: Now, Dr. Bemis, I just want to see if I understand this.

These items aggregating $1,274,178 are, in your opinion, valid expenses incurred by this company?

Dr. Bemis: Yes.

Mr. Barbour: Which it is entitled to have returns for either by way of allowance in capital or by payment out of income?

Dr. Bemis: Yes.

Mr. Barbour: The other items you do not think should be allowed at all?

Dr. Bemis: Yes, the last list, aggregating $2,385,340.13. If they had enough income it should have been amortized, but if they did not have enough income they have a right to include that in their claim as a capital charge against the public.

Commissioner Newman: Just a moment before you leave that. Mr. Barbour asked you two questions, doctor. I think you are under the impression he asked you one. He asked you about the $1,274,178 item, and also asked you as to the $2,387,340.13 item.

Mr. Barbour: I think that is clear that I asked you about both items, one list that they should not be entitled to a return upon at all, that it is not entitled to any allowance for, in your opinion, that is, that the company is not entitled to any allowance on the $2,385,340.13.

Dr. Bemis: I understood you to ask me the question that way, and I undertook to say yes, that that was my understanding.

Commissioner Newman: That is just the point in my mind. I cannot tell from your "yes" whether you mean they are entitled to it or are not entitled to it, because of the form in which the question is asked.

636 Dr. Bemis: The company is not entitled, in my judgment, either to capitalize or to get from the consumer the $2,385,340.13 for rights and franchises. It is entitled, in one form or the other, to get the item of $1,274,178.

They are not entitled to get the $2,385,340.13 because they represent, as I understand it, payments by one company to another for its franchises or its rights, and they cannot be capitalized against the public unless the public has been paid for the franchises the same amount. Whatever the public has been paid for franchises can be capitalized, but these do not represent any payments to the public

treasury, but represent payments that one company makes to another, and what cannot be capitalized against the public I do not think can be capitalized by a process of sale to a second company. I do not think a second company can capitalize against the public what the first one could not. If the original one could not capitalize it, I do not see how by selling it the second company gets any rights that the first one did not have.

In the opinion of this witness the actual cost is far more important than any other element, or than all other elements combined in ascertaining fair value.

"Because we are asking equity, fair dealings and justice, and the just basis, it strikes me, is the sacrifice of the investor in the property of the Company rather than the purely hypothetical absolutely impossible proposition, so far as its ever being carried out, of an immediate wholesale reproduction. I agree quite fully with the suggestions of the attorney for the company cross examining Mr. Pillsbury that wholesale reproduction is mythical, though those are not exactly his exact words. It is absolutely out of the question. You will never find it. It is purely an hypothesis, while the actual cost, if we can get it, is right at the hardpan; there is nothing hypothetical about it, and it represents the real sacrifice of the owners of the property.

"I think if prices were falling as they were pretty largely from 1873 to 1896, the injustice of the reproduction theory would be clearly seen, but because prices are rising it is not quite so easy, perhaps, for some people to see the injustice of the reproduction theory.

He thinks that either one is wrong. I think the only proper method is the actual cost.

"I will say frankly that there is some weight still given to the reproduction theory, more than I think there should be. I think it must be set up, and some weight will always be given to it. There are some questions regarding the point of whether there are omissions in this actual cost or recorded cost."

Asked if Mr. Sangster had made any omissions which he had been able to discover and which he thinks should be added to the original cost and should be considered in connection with it, he responded:

Dr. Bemis: I am not going to answer for Mr. Sangster as to whether his latest studies have revealed any items that should be added, for I have not gone through the books with the care that he has, but regarding a few matters of a more or less general nature. I think I can speak with some assurance.

637 Installation of Meters Omitted by Mr. Sangster (Bemis).

He has omitted the cost of installation of meters. The company has charged it to operating expenses, and where that has been done it is common in commissions that I am familiar with to refuse to allow it to be capitalized in a rate case. In fact some commissions

absolutely compel the company to put the cost of installation in the operating expenses.

I think that the cost of meter installation was properly ignored by Mr. Sangster. It was not recorded on the books as a capital charge, and he did not try to put it on the books. I think it was properly recorded by the company as an operating expense.

638 Overhead Charges Omitted by Mr. Sangster (Bemis).

General charges were three in number; first, omissions and contingencies; second, engineering and superintendence or supervision; third, interest and taxes. I am aware of another, insurance, but it is so small an item that it can practically be ignored.

Taxes are really small also, and the real big items are omissions and contingencies, engineering and supervision, and interest.

In reproduction cost, allowance must be made for omissions and contingencies. In the recorded or actual cost on the books all costs go on the books in the same form. You do not want to add to anything that is already there. The cost of a completed table is the cost of that table. All accidents, omissions, contingencies that enter into it are part of the cost of that table. I will consider a moment later the question of possibly charging to operation.

Now, engineering and supervision and interest are on a somewhat different basis. They may be charged by a company to construction or they may be charged to operation, in the case of engineering and supervision. In the case of interest they may go in as a simple charge against income.

Now, taking up engineering and supervision, an actual piecemeal extension, such as has been going on in this company or in this city since 1882, the amount of engineering and supervision required in piecemeal extensions is nothing like as large as is required in wholesale reproduction. The same man who is devoting part of his time to operation devotes part of his time often to engineering and supervision of construction, and that overhead or general charge is not as great in piecemeal extension. The item is a small one, in the first place. In the second place it seems to me just to leave it in operating expenses, if it had been placed there. Some of it has been placed in construction. The report of Mr. Sangster shows certain expenditures of a general or overhead nature which are to be found on page 13 of his report, engineering and superintendence.

The column headed "Engineering and superintendence" and the column headed "Executive salaries and special services," and the item headed "General and miscellaneous expenditures." No, the other two. They amount to about $187,000, and that is somewhat in the neighborhood of 2½ per cent or a little over. As for further costs, if there were such, in engineering and supervision, they must have been charged to operation.

Where a company has a force which devotes part of its time to one line of work, namely, construction, and another portion of its time to maintenance and operation, it is very difficult for a rate-making body to adjust matters if such expenses are charged, now,

one year to construction and one year to operation, on a closely balanced rate of charge based on cost. That would often mean a difference of 1 to 2 cents a thousand feet in the charge for gas, or might make quite a difference per kilowatt hour in the charge for electricity, yet the same man would be employed, in one year they would be slightly more than half the time devoted to extentions, and another year a little more than half the time devoted to operation. That is often the case, as you will find if you follow the payroll of the company on the engineering side. You will find there is not much difference in this engineering payroll where the company is doing considerable construction work or only little. Of course it has to be there anyway.

If the books are to be rewritten and the cost recorded as the cost of the property is to be increased, there is only one place from which the money can be taken that is to be put into this additional capital, namely, out of expenses, for it is charged to one place or the
639 other. If the Company is going to take a lot of money out of its operating expenses and put into capital in the past it proportionately increases its showing of profits in the past because everything that reduces an operating expense increases the profit. Take the past year as an illustration, where a lot of extensions were going on, and the year before, and so on back. It would mean a rewriting of the books or else the Company gets the money twice—first, as an operating charge from the public, and then again capitali*zation* it now for the future. I am satisfied from careful investigation that Mr. Sangster has shown how they have charged it, and I do not see why we should change and rewrite the books.

A motion to exclude this statement was overruled. Exception noted.

I reached the conclusion therefore that the cost as set up by the accountants, which is the cost recorded on the books of the Company as capital costs, should not be disturbed save as mistakes may be found in his study of those books and accounts. Of course there may be a few thousand dollars of error, and if so it should be changed. But so far as I have been able to go in my investigation I am taking the report of Mr. Sangster as correct, and I believe I am justified in so doing.

That concludes what the witness had to say of overhead charges. In comparing actual cost with the reproduction cost I have made a certain tabulation here which merely takes the reproduction cost with the additions that I put in this morning as my understanding of the $270,000 additional cost that Mr. Pillsbury has inserted, and I have compared that with the recorded cost of Mr. Sangster.

Mr. Barbour: You started off to discuss certain omissions of Mr. Sangster. Did you come to any figures on that?

Dr. Bemis: They were like the snakes in Ireland—there were not any.

Mr. Barbour: I just wanted to see whether you were talking about anything or nothing. It appears to be that the latter is the fact.

The witness then read into the record the comparison between the reproduction cost and the recorded cost. There are four columns,

the first headed "Description," the second, "General Charges," the third, "Base," and the fourth, "Recorded Cost." I separated them for the purpose to be explained later.

Land, general charges, $58,447; Base, $433,792; Recorded Cost, $353,361.16.

Commissioner Brownlow: As I understand the sum of the General Charges and the Base is the total of the cost of reproduction?

Dr. Bemis: Yes, sir. Structures, general charges, $169,476; Base, $749,513.92; Recorded Cost, $773,278.88.

Power plant and Substation Equipment; General Charges, $509,931; Base, $2,497,334.89; Recorded Cost, $2,689,693.74.

Other property: General Charges, $857,812; Base, $4,695,363.85; Recorded Cost, $4,053,321.74.

Total: General Charges, $1,595,666; Base, $8,376,004.66; Recorded Cost, $7,869,655.54.

(The table referred to, is in the words and figures following, to wit:)

"Comparison of Reproduction with Recorded Cost.

	General charges.	Base.	Recorded cost.
Land	$58,447.00	$433,792.00	$353,361.16
Structures	169,476.00	749,513.92	773,278.88
Power Plant and Substation Equipment ..	509,931.00	2,497,334.89	2,689,693.74
640			
Other Property..	857,812.00	4,695,363.85	4,853,321.74
"Total ..	$1,595,666.00	$8,376,004.66	$4,869,655.54"

The witness continued: This general charge and base includes Mr. Kappeyne's estimate of $492,000 for property outside the District, since the recorded cost included those elements of property, and I separated the general charges from the base so as to show that the recorded cost is not very far from the base in the case of structures, power plant and substation equipment. It is much more diverse in the case of Transmission and Distribution than the Land. It is natural that it should be in the case of the land, which is the original value undoubtedly. And in the case of Other Property, mainly Transmissison and Distribution, it was probably due in large part to the increased cost of copper and labor in installation of conduits and poles, increased cost of lumber for poles, and to the fact that the engineering and supervision of the construction of a distribution system is usually charged to operation. And for the reasons I have given I think it should not be changed.

641 Interest During Construction—Bemis.

I forgot to state in the case of Interest if it should be considered necessary to add to the Recorded Cost an Allowance for Interest, it should be much less than interest in a wholesale reproduction where 7 per cent was allowed by Mr. Pillsbury, on the theory of a two or three-year reconstruction.

642 Bemis' Method of Piecemeal.

Usually brings property into use as an operating property on the average of from three to six months after it is paid for. The interest would only apply to the average time between the payment for the property and the time when it becomes an operated part of the property; and 2 to 3 per cent would cover that. The distribution system usually gets into use as an operated property within a month or two after it is paid for.

The buildings of course, very much longer. But substation equipment, boilers, generators, etc., get into use within a very short period after they are paid for.

643 Development Cost—Bemis.

Soliciting and canvassing are operating expenses just as much as a coal bill, and to capitalize soliciting and canvassing after it is charged to operation, seems to me just like capitalizing a coal bill.

But the question of going value is perhaps a little broader, and in order to determine whether there were deficits here that would come under that head, I have made quite a study of the subject.

I studied the income of the company from 1882 to the present, through 1915, its gross income and its net income.

After taking out from that income all those allowances which Mr. Sangster has made, which I thought having been taken out of capital must be cared for somewhere, and cared for by gross income, I then adjusted the Capital Account according to his deductions; then compared the remaining net income with the adjusted investment from year to year, and by groups of years.

I distributed earlier in the afternoon one page of that table, which the gentlemen have. It is entitled "Adjusted Gross Income," and I think everyone has it. There are two pages. The data was prepared for me, the figures, by Mr. Sangster, or under his direction at my request. I will read the first page, but not the table perhaps.

"The important question arises whether the company has earned enough to write off the above $1,274,178 of legitimate costs, as well as to pay a fair return on the property which Mr. Sangster has considered a legitimate construction or capital charge today."

"The gross income of the United States Electric Company, from its origin in 1882, until its end September 30, 1902, and of the Potomac Electric Power Company from its organization in 1896 until

June 30, 1914, and the total of the two, were first determined by years. A Supplementary study brought these figures down to the close of 1915.

"It was then necessary, for the purpose in hand, to reverse certain charges for depreciation since 1906. Amounts during this recent period, taken out of gross income and charged to the depreciation reserve but not expended, were put back into gross income. On the other hand, losses on equipment, sold, scrapped, etc., to the amount of $388,953.85, were deducted from the gross income, leaving an adjusted gross income.

"The result is given in the following table.

"The table was prepared entirely by Mr. Sangster at my request. It gives, it will be noticed, the gross income of the two companies, the United States Electric Light Company, and the Potomac Electric Power Company, and the total of the two companies, for there were a few years when they were both in operation, from 1896 until 1902. Then the increase of the depreciation reserve reversed, and the loss on equipment scrapped, sold, etc., is given.

This table was read into the record as follows:

TABLE B-1.

"Gross Income, with Adjustments for Depreciation, Reserve, and Losses on Equipment Sold, Scrapped, etc.

Year of period ending—	Gross income. U. S. E. L. Co.	Gross income. P. E. P. Co.	Total.	Increase in depn. reserve reserved.	Loss on equipment, scrapped, sold, etc.
Nov. 8, 1883.....	$1,137.25r	.....	$1,137.25r	.....	.....
Oct. 31, 1884.....	16,215.24	.....	16,215.24	.....	.....
1885.....	12,747.75	.....	12,747.75	.....	.....
1886.....	10,312.51	.....	10,312.51	.....	.....
1887.....	25,403.33	.....	25,403.33	.....	.....
1888.....	41,018.76	.....	41,018.76	.....	.....
1889.....	52,490.68	.....	52,490.68	.....	.....
1890.....	74,323.18	.....	74,323.18	.....	.....
1891.....	93,483.99	.....	93,483.99	.....	.....
1892.....	104,605.94	.....	104,605.94	.....	.....
1893.....	139,768.46	.....	139,768.46	.....	.....
1894.....	43,175.40	.....	43,175.40	.....	.....
1895.....	115,462.67	.....	115,462.67	.....	.....
1896.....	37,687.05′	$2,258.90r	35,428.15	.....	.....
1897.....	76,474.23′	5,558.63r	70,915.60	.....	.....
1898.....	129,778.45′	24,501.72	154,280.17	.....	$128,631.37
Dec. 31, 1899.....	183,362.55	22,218.80	205,381.35	.....	.....
1900.....	78,609.96	11,401.22r	67,208.74	.....	12,290.18
1901.....	65,898.74r	3,753.08	62,145.66r	.....	26,694.59

′ Year of Period ending Dec. 31, 1896, etc.
r Signifies red.

TABLE B-1.—*Continued.*

Year of period ending—	Gross income. U. S. E. L. Co.	Gross income. P. E. P. Co.	Total.	Increase in depn. reserve reserved.	Loss on equipment, scrapped, sold, etc.
Sep. 30, 1902.....	129,994.30	.....	200,899.87	.....	.....
Dec. 31, 1902.....	.....	71,905.57	.....	.....	34,644.84
1903.....	.....	293,161.44	293,161.44	.....	.....
1904.....	.....	383,575.19	383,575.19	.....	.....
1905.....	.....	446,699.74	446,699.74	.....	.....
1906.....	.....	498,521.01	498,521.01	.....	.....
1907.....	.....	607,307.20	607,307.20	$22,187.35	12,265.59
1908.....	.....	738,463.90	738,463.90	21,317.22	.....
1909.....	.....	760,012.67	760,012.67	27,611.41	85,623.26
1910.....	.....	830,371.77	830,371.77	36,806.78	25,600.63
1911.....	.....	904,472.73	904,472.73	59,056.46	2,373.69r
1912.....	.....	960,936.25	960,936.25	86,655.83	2,373.70r
1913.....	.....	1,034,317.43	1,034,317.43	99,946.46	30,862.37r
1914.....	.....	1,058,420.72	1,058,420.72	115,901.16	1,186.85r
1915.....	.....	1,133,887.69	1,133,887.69	160,458.11	.....
Total.....	$1,296,878.46	$9,753,308.16	$11,050,186.62	$629,940.78	$388,953.85

r Signifies red.

Dr. Bemis: The next table will show the combination in the adjusted net income, which I will distribute now. Reading:

"It then became necessary to deduct from this adjusted income $573,036.53, -or organization expenses incurred in 1899, and $109,-750.00 for amortization of discounts, or a total of $682,786.53,— items no longer included in the capital account as set up by Mr. Sangster. Mortgage expenses of $10,651.41, and a discount of $56,323.56, were also deducted from adjusted gross income. Other discounts already amortized were likewise deducted.

"The result is shown in the following table:

C-1.

Net Income Subject to Depreciation.

Year or period ending—	Gross income adjusted for depreciation reserve and losses on equipment scrapped, sold, etc.	Organization expenses, amortization of discounts (interest charged to construction) and other deductions.	Net income subject to provision for accrued depreciation.
Nov. 8, 1833	$1,137.25r	.....	$1,137.25r
Oct. 31, 1884	16,215.24	.....	16,215.24
1885	12,747.75	.....	12,747.75
1886	10,312.51	$2,450.00	7,821.51
1887	25,403.33	3,722.50	21,680.83
1888	41,018.76	737.50	40,281.26
1889	52,490.68	54,900.00	2,409.32r
1890	74,323.18	24,750.00	49,573.18
1891	93,483.99	.....	93,483.99
1892	104,605.94	150.00	104,455.94
1893	139,768.46	.....	139,768.46
1894	43,175.40	.....	43,175.40
1895	115,462.67	.....	115,462.67
Dec. 31, 1896	35,428.15	.....	35,428.15
1897	70,915.60	24,600.00	46,315.60
1898	25,648.80	.....	25,648.80
1899	205,581.35	682,786.53*	477,205.78r

1900	54,918.56	.....	54,918.56
1901	88,840.25r	.....	88,840.25r
1902	166,255.03	.....	166,255.03
1903	293,161.44	56,323.56	236,837.88
1904	383,575.19	10,651.41	372,923.78
1905	446,699.74	.....	446,699.74
1906	498,521.01	.....	498,521.01
1907	517,228.96	.....	517,228.96
1908	759,781.12	45,000.00	714,781.12
1909	702,000.82	5,638.12	696,372.70
1910	841,577.92	10,723.26	830,854.66
1911	965,902.88	10,824.98	955,077.90
1912	1,049,965.78	10,870.53	1,039,095.25
1913	1,165,126.26	10,879.56	1,154,246.70
1914	1,175,508.73	10,882.85	1,164,625.88
1915	1,294,345.80	11,021.19	1,283,324.61
	$11,291,173.55	$976,901.99	$10,344,271.56

*Organization Expense	$573,036.53
Discounts	109,750.00
Total	$682,786.53

(NOTE.—"r" signifies red.)

I then give in the first column the gross income adjusted for depreciation reserve and losses on equipment scrapped, sold, etc., which is the conclusion of the first table just given and omitted from that page for lack of room. Then organization expenses, amortization of discounts, interest charged to construction and other deductions. Then we have the result of net income, which is not a true net, because it is subject to provision for accrued depreciation, which I will consider later; but this is the net income after writing out everything that Mr. Sangster has discarded, save those franchise charges which I believe should not be considered at all. But this writes out and takes care of every other conclusion that Mr. Sangster made from Capital Account.

Dr. Bemis: Then I have a table of "Adjusted Investment," which he read as follows:

D-1.

United States Electric Lighting Company and Potomac Electric Power Company.

Statement Showing Cost of Plant and Equipment as per the Company's Books and Cost as Adjusted as Nearly as Practicable by Years.

Year or period ending—	Investment at end of year.	Loss on equipment sold, scrapped, or abandoned.	Net deduction at end of year.	Investment at end of year as adjusted.
Nov. 8, 1883	$228,137.65	$200,000.00	$200,000.00	$28,137.65
Oct. 31, 1884	241,776.90	.....	200,000.00	41,766.90
1885	274,786.95	.....	200,000.00	74,786.95
1886	292,480.51	.....	200,000.00	98,480.51
1887	370,094.04	.....	200,000.00	170,094.04
1888	490,199.59	.....	200,000.00	290,199.59
1889	608,576.12	.....	200,000.00	408,576.12
1890	761,005.59	.....	200,000.00	561,005.59
1891	915,963.96	.....	200,000.00	715,963.96
1892	1,136,086.69	.....	200,000.00	936,086.69
1893	1,276,090.35	.....	200,000.00	1,076,090.35
1894	1,224,697.35	.....	200,000.00	1,024,697.35
1895	1,290,952.96	.....	200,000.00	1,090,952.96
1896	1,443,110.63	.....	200,000.00	1,243,110.63
1897	1,864,044.32	.....	200,000.00	1,664,044.32
1898	2,964,856.21	128,631.37	328,631.37	2,635,624.84

Adjusted Investment—Bemis.—*Continued.*

Year or period ending—	Investment at end of year.	Loss on equipment sold, scrapped, or abandoned.	Net deduction at end of year.	Investment at end of year as adjusted.
Sep. 30, 1899	2,966,771.68	.....	328,631.37	2,638,140.31
Dec. 31, 1899	2,037,057.23	392,883.37	721,514.74	2,315,542.49
1900	3,289,270.43	12,290.18	733,804.92	2,555,465.51
1901	3,535,583.73	26,694.59	760,499.51	2,775,084.22
Sep. 30, 1902	3,630,877.98	.....	760,499.51	2,870,378.47
Dec. 31, 1902	3,701,485.29	34,644.84	795,144.35	2,906,340.94
1903	3,899,254.62	.....	795,144.35	3,104,119.27
1904	4,107,139.45	.....	795,144.35	3,311,995.10
1905	4,420,772.32	.....	795,144.35	3,625,627.97
1906	5,400,372.05	10,651.41	805,795.76	4,594,576.29
1907	6,295,271.78	112,265.59	918,061.35	5,377,210.43
1908	6,883,649.16	.....	918,061.35	5,965,587.81
1909	7,108,764.05	85,623.26	1,003,684.61	6,105,079.44
1910	7,529,879.16	27,974.32	1,029,285.24	6,500,593.92
1910	.....	2,373.69r	.....	.....
1911	7,953,030.39	2,373.69r	1,026,911.55	6,926,118.84
1912	8,487,076.90	2,373.70r	1,024,537.85	7,462,539.05
.....	.....	2,373.70r	.....	.....
1913	8,723,028.51	28,488.67r	993,675.48	7,729,353.03
1914	9,270,550.80	1,186.85	993,488.63	8,278,062.17
1915	9,581,240.05	.....	992,488.63	8,588,751.42

Witness continued, page 2529: "Having reduced the gross income so as to take care of losses on equipment sold and scrapped, and organization expenses, discounts, interest, etc., properly rejected by Mr. Sangster in the construction account and properly chargeable to income, there remains a revision of the investment account from year to year so as to reduce it by $992,488.63, which should have been written off, or never included in the investment. The
647 items entering into this may be classified as follows:

I then give for the combined companies the investment at the end of the year, equipment sold, scrapped or abandoned, the net deduction at the end of *of* the year, and the investment at the end of the year, as adjusted, which is set up in the last column. This is continued, it will be noticed, through 1915, although the report had stopped with July 1, 1914.

Then I have a concluding page based on these, being the Ratio of Net Income to Average Investment, as defined in these pages.

This is the Ratio of Net Income to Average Investment. The first column is the average investment for the year, which is made up of an average of the beginning and ending of the year, adding the two together and dividing by two; and the net income is given for each year as adjusted in the preceding tables. Then for groups of years the ratio of income to average investment is divided in a general way into three groups of eight years each—not exactly that: the first two are of eight years, the second, of ten, and the next of seven. The first group of eight years shows an average weighted ratio of income to average investment of 10.34 per cent; the next eight years, 6.46 per cent; the next ten years, 7 per cent, and the last seven years, 14.168 per cent. I have a total weighed average for whole period of 10.753 per cent. The table is as follows:

E.

"Ratio of Net Income to Average Investment.

Year or period ending—	Average investment.	Net income.	Ratio of income to average investment.
Nov. 8, 1883	$28,137.65	$1,137.25r	
Oct. 31, 1884	34,952.27	16,215.24	
1885	58,876.92	12,747.75	
1886	83,633.73	7,862.51	
1887	131,287.27	21,680.83	
1888	230,146.81	40,281.26	
1889	349,387.85	2,409.32r	
1890	484,700.85	49,573.18	
Total of above eight years	$1,400,613.35	$144,814.20	10.34%
Oct. 31, 1891	638,484.77	93,483.99	
1892	826,025.32	104,455.94	
1893	1,006,088.52	139,768.46	
1894	1,050,393.85	43,175.40	
1895	1,057,825.15	115,462.67	
Dec. 31, 1896	1,167,031.79	35,428.15	
1897	1,453,577.47	46,315.60	
1898	2,149,834.58	25,648.80	
Total of above eight years	$9,349,261.45	$603,739.01	6.46%

Dec. 31, 1899	2,475,583.66	477,205.18r	
1900	2,435,504.00	54,918.56	
1901	2,665,274.86	88,840.25r	
1902	2,840,712.58	166,255.03	
1903	3,005,225.60	236,837.88	
1904	3,208,052.68	372,923.78	
1905	3,468,811.53	446,699.74	
1906	4,110,102.13	498,521.01	
1907	4,985,893.36	517,288.96	
1908	5,671,399.12	714,781.12	
Total of above ten years	$34,866,559.52	$2,442,180.65	7.00%
Dec. 31, 1909	6,035,333.62	696,372.70	
1910	6,302,836.68	830,854.66	
1911	6,713,356.38	955,077.90	
1912	7,194,328.94	1,039,095.25	
1913	7,595,946.04	1,154,246.70	
1914	8,003,707.60	1,164,625.88	
1915	8,433,406.80	1,283,324.61	
Total of above seven years	$50,278,916.06	$7,123,597.70	14.168%

r signifies red.

648 Dr. Bemis: Then comes the question whether there are early losses not made up by later gains. I do not find them in that table. Then the next question is whether in the last period there are additional profits above a fair rate of return sufficient to cover the accrued depreciation set up by Mr. Pillsbury, of applying the same rate of depreciation to the recorded cost.

Mr. Pillsbury set up an accrued depreciation (at least with slight modifications introduced by the few additions lately, in the last day or two) of $1,884,707.48. That distributed over the earnings of the last seven years amounts to 3.749 per cent, which deducted from the 14.168 per cent leaves a net of 10.419 per cent. If it be applied to the entire period from 1882 to 1915 it will reduce the weighted average for the whole period by 1.965 per cent and leaves the profit 8.790 per cent.

The percentage of depreciation applied by Mr. Pillsbury to each class of property I have applied likewise to the record cost of the property by classes of property, which means a depreciation on that basis of $1,533,319.39, which is a depreciation of 3.05 per cent during the last seven years, and that taken off from 14.158 leaves 11.118 per cent. That taken off from the entire period from 1882 to 1915 leaves a net of 9.246 per cent, being an equivalent to 1.509 per cent.

The conclusion that I reach therefore is that the company has earned enough to take care of all the excluded depreciation that Mr. Sangster excluded, and all the accrued depreciation which Mr. Pillsbury has testified to, and to still have left a very liberal return particularly during the last seven years.

The admission of all of these tables and the explanations of witness in support thereof were moved to be excluded as they were severally introduced which exceptions were overruled by the Commission seriatim subject to the Company's exceptions, with the understanding that the Commission will introduce evidence to show that the tabular statements were taken from the books and records of the Company; they will be admitted into the record at this point.

When asked what he meant by the expression "the increase in depreciation reserve reversed," the witness replied: "It was the amount that had been charged to the depreciation reserve but not spent. It did not represent necessarily any expenditures for depreciation, and I allowed the theoretical depreciation later in accepting Mr. Pillsbury's estimate of accrued depreciation. I have included all that they did expend in these other columns, so any amount that they simply added to the reserve did not see- to me—while it is proper to have had such a charge, and I do not find any fault with it—yet for the purpose I had in mind of showing the real net income, the depreciation being otherwise taken care of, it did not need to be taken care of here, or otherwise it would have been developed.

649 Going Value—Bemis.

The witness had considered going value in a way that he has taken it up in these tables, because he had reached the conclusion that there were no early losses, that there had been large gains especially in the

last few years. There are two other theories of going value. The theory based on reproduction of the property logically carried out is the theory of what it would cost to reproduce the income, or an attempt to determine, as Mr. Alvord calls it, the value of an acquired income. That I have not attempted to apply. I have taken the other view which is more the historical view, and the ethical view, of whether a company has any just claims against the public for early losses that may not have been made up by later gains.

I am not aware of any decision of the United States courts that upholds the first view, while the Des Moines Gas Case decision clearly employed the second, and so did the famous decision of the Court of Appeals in the Kings County Light Case, of New York, namely, that the going value, if there be any, is the early deficits not made up by later gains.

There is another theory that can be called a going value, and was the theory taken by the Master, I believe, in the Des Moines Gas Case, which is that by not valuing it as scrap but valuing the property as property in use, a going value is given. That is, you assume the investment was well managed, well planned and the property ought to be there. It is not to be considered as if it were out on the prairie without any business, in a small town; that is the existence is justified by its business. And in that case you assume it is a business if it is a going concern.

But it is not the kind of going value that has been often referred to. Usually the claim has been it is either the value of acquired income on the reproduction theory, or the cost or the amount of deficits on the historical theory. The latter theory is the theory very often introduced by the Wisconsin commission and other commissions.

Mr. Barbour: Is this going value like the snakes in Ireland, too?

Dr. Bemis: Your going value as I consider it was practically wiped out by your excellent financial history.

Mr. Barbour: We were so prosperous we lost money by it.

Dr. Bemis: I found you were in a very fortunate position.

650 Working Capital—Bemis.

Dr. Bemis: I may say that as to the working capital, which I have not mentioned, I have no reason for testifying particularly on that. Mr. Sangster and Mr. Pillsbury have come to the same result, about $265,000 together. I like the method which Mr. Pillsbury has taken. It is the one I have usually taken, namely, to take one-eighth of the operating expenses of the year as the amount that might well be added to the materials and supplies on hand.

651 Going Concern Value—Bemis.

Commissioner Brownlow: What is your opinion about the going concern value, I mean the theory of going value which you imputed to the Master in the Des Moines Gas case?

Dr. Bemis: That I believe is a correct theory, and is sustained, it was strongly adopted by Mr. Stevens in the Buffalo Gas & Electric

cases when he was chairman of the Commission, and wrote the opinion which was signed by the whole Commission.

Asked the second time for his opinion on the subject, Dr. Bemis said:

I have very serious doubts whether even the theory of going value based on early losses not made up by later gains is altogether sound, because the courts have not yet taken it in its fullness. If a company is entitled to ask for a return on early losses not made up by later gains, then it ought in return to deduct from its capital account an excess of early gains, or all gains, so that even part of the physical property might be wiped out by excess, if there be such, or surplus. That is not yet the interpretation of the courts, and therefore I do not consider that the tendencies are quite fair to the public to only apply a rule one way. At the same time in these public utilities I have generally investigated that element to see whether there were any losses not made up by later gains.

Mr. Barbour: This witness certainly stated in reply to the suggestion from the Chairman that he was not exactly in accordance with what he seems to think is the trend of judicial decisions at the present time. I do not know just what he means by that, and I don't know that anybody else knows what he means by it. I do not see what weight it has got in this case one way or the other.

Dr. Bemis: I *I* intended to indicate that the courts have favored the setting up of an estimate of early losses if there be such, that were not made up by later gains. I merely expressed the opinion that that was not altogether fair to the public unless when the matter was reversed and there were excessive profits the capital were not reduced. That was all I intended to say.

Motion to strike out overruled and an exception noted.

652 Franchise Values—Bemis.

Commissioner Newman: Doctor Bemis, there were certain of the franchise values which you expressed the opinion should not be considered, should not be allowed in this case. In your opinion is there any difference between franchises so-called of utilities in the District of Columbia, and franchises of utilities in the states?

Doctor Bemis: No; I do not know of any difference.

653 Accrued Depreciation—Bemis.

Chairman Kutz: Doctor Bemis, in considering the cost of reproduction as an element of fair value or an element to be taken into consideration in determining the fair value, what is your judgment as to the item of accrued depreciation, as to whether the cost of reproduction new, or the cost of reproduction new less depreciation, should be given greater weight in determining fair value?

Dr. Bemis: I think the accrued depreciation should be given full weight, that we are seeking a fair value, and that fair value is less if a portion of the useful life of a property is gone. I believe that that is the view of the United States Supreme Court.

Chairman Kutz: Dr. Bemis, assuming that annual depreciation is set up on the sinking fund basis, do you think the cost of reproduction new or the cost of reproduction new less depreciation, should have the greater weight in determining the fair value?

Dr. Bemis: The cost of reproduction new. There will be no depreciation if they have a sinking fund established equal to the amount that should be in it at this time.

Chairman Kutz: Assuming the company has not in the past set up a depreciation fund equal to the accrued depreciation, would your answer be the same?

Dr. Bemis: On property new with a sinking fund method, there would be no deduction for depreciation. If they have not created a sinking fund some method should be devised, if that method is to be followed, of securing in that sinking fund an amount that should be there, on the theory of the age and life of the property; and if the earnings have been sufficient for it I would not perhaps deduct anything from the value of the property; but my judgment would be that some means should be taken to have such a sinking fund provided. That is, I mean put into a sinking fund as much as should be there.

Asked how that could be accomplished if the cost of reproduction new were assumed to reflect in a way the fair value of the property, the witness replied:

The cost of reproduction new is assumed to reflect it on the theory that they had — sinking fund and they have earned enough presumably (and I am assuming that all the time) to have created a sinking fund. If they have not done it, it is quite likely that it should be required to restore to it, but just how that should be done I have never thought out. I have never had occasion to consider that problem before. It is one of the reasons why I believe the straight line method is a preferable one. It is the method on which all companies are practically operated in this country.

Further hearing adjourned to Saturday, November 18th.

654 Further examination of Dr. Bemis was suspended at this time (Sat., Nov. 18th) and Mr. Sangster, accountant, previously examined, was recalled to prove certain tables previously and subsequently referred to by Dr. Bemis as follows:

Mr. Sangster's attention was first called to the table between pages 2522 and 2525 entitled "Gross Income with Adjustments for Depreciation Reserve and Losses on Equipment Sold, Scrapped, etc." and testified that the data contained in that table was obtained from his analysis of the Income and Profit and Loss Account of the United States Electric Lighting Company and the Potomac Electric Power Company, and the table is taken from certain of the figures shown in that analysis, and that he had given copies of the last table to Mr. Barbour that morning. The witness here produced three new tables which he said he would like to hinge into the accounting report so that they can be made an accompanying part of that if necessary.

He then continued, referring to page 238 of the Accounting Report, which is Exhibit "B" of Section 17, being the second page of the balance sheet of the United States Electric Lighting Company; the last column shows the surplus at the close of each year of the financial period beginning November 8, 1883, and continuing down to September 30, 1902.

That the first of the three tables is entitled "United States Electric Lighting Company Comparative Summary of Gross Earnings, Interest Charges and Surplus Account," for this same period, and closes with the accumulated surplus of deficit, which agrees with the final column on page 238.

This table is marked Exhibit Sangster No. 1 and is found in the record pages 2578–2582 as follows:

(Here follows Exhibit Sangster No. 1, marked page 655.)

Comparative

Year or period ended.	Gross earnings.	Expense
Nov. 8, 1883	$13,827.22	14,764.
Oct. 31, 1884	25,933.58	20,729.
1885	34,707.89	24,462.
1886	48,732.47	26,189.
1887	56,406.68	30,689.
1888	83,584.96	42,044.
1889	118,776.35	65,718.
1890	153,692.39	78,787.
1891	176,371.58	84,964.
1892	230,359.04	124,925.
1893	274,253.90	133,612.
1894	294,303.29	149,894.
1895	265,145.02	147,168.
1896	287,123.29	144,249.
1897	290,767.12	162,910.
1898	296,472.03	162,686.
Dec. 31, 1899	357,622.11	144,584.
1900	368,387.38	204,955.
1901	450,914.62	201,632.
Sept. 30, 1902	376,487.79	179,243.

R indicates red.

EXHIBIT SANGSTER No. 1.

United States Electrical Lighting Company.

Comparative Summary of Gross Earnings, Interest Charges, and Surplus Account as at November 8, 1883, *October* 31, 1884 *to* 1898, *December* 31, 1899 *to*

Expenses.	Taxes.	Depreciation.	Total deductions.	Net earnings.	Profit on sale of securities, etc.	Gross income.	Interest paid net.
14,764.47	.....	.....	14,764.47	R1,137.25	.....	R1,137.25	.....
20,729.31	205.20	.....	20,934.51	4,999.07	11,216.17	16,215.24	44.09
24,462.45	183.60	.....	24,646.05	10,061.84	2,685.91	12,747.75	168.27
26,189.96	230.00	12,000.00	38,419.96	10,312.51	.....	10,312.51	2,666.95
30,689.59	313.76	.....	31,003.35	25,403.33	.....	25,403.33	4,106.93
42,044.51	521.69	.....	42,566.20	41,018.76	.....	41,018.76	11,500.79
65,718.98	566.69	.....	66,285.67	52,490.68	.....	52,490.68	22,872.33
78,787.34	581.87	.....	79,369.21	74,323.18	.....	74,490.68	23,805.89
84,964.82	827.77	.....	85,792.59	90,578.99	2,905.00	93,483.99	13,368.17
124,925.33	827.77	.....	125,753.10	104,605.94	.....	104,605.94	31,144.79
133,612.67	872.77	.....	134,485.44	139,768.46	.....	139,768.46	26,425.45
149,894.74	1,048.15	100,285.00	251,227.89	43,175.40	.....	43,175.40	16,934.52
147,168.84	1,239.11	1,274.40	149,682.35	115,462.67	.....	115,462.67	9,780.44
144,249.56	1,629.76	103,556.92	249,436.24	37,887.05	.....	37,687.05	8,320.47
162,910.39	1,382.50	50,000.00	214,292.89	76,474.23	.....	76,474.23	17,648.23
162,686.36	1,607.85	2,199.37	166,693.58	129,778.45	.....	129,778.45	29,760.57
144,584.44	4,675.12	25,000.00	174,259.56	183,362.55	.....	183,362.55	56,378.73
204,955.46	6,865.45	77,956.51	289,777.42	78,609.96	.....	78,609.96	42,857.96
201,632.68	6,272.42	308,908.26	516,813.36	R65,898.74	.....	R65,898.74	43,668.34
179,243.76	9,595.84	58,653.89	247,493.49	128,994.30	.....	128,994.30	37,228.17

STER No. 1.

Lighting Company.

er 8, 1883, *October* 31, 1884 *to* 1898, *December* 31, 1899 *to* 1901, *and September* 30, 1902.

Profit on sale of securities, etc.	Gross income.	Interest paid, net.	Dividends.	Commissions.	Total deductions from earnings.	Surplus or deficit for year or period.	Accumulated surplus or deficit.
.....	R1,137.25	.....	.....	.....	.....	R1,137.25	1,137.25
11,216.17	16,215.24	44.09	6,000.00	.....	6,044.09	10,171.15	9,033.90
2,685.91	12,747.75	168.27	4,500.00	.....	4,668.27	8,079.48	17,113.38
.....	10,312.51	2,666.95	19,500.00	2,450.00	24,616.95	R14,304.44	2,808.94
.....	25,403.33	4,106.93	4,500.00	3,722.50	12,329.43	13,073.90	15,882.84
.....	41,018.76	11,500.79	600.00	737.50	12,838.29	28,180.47	44,063.31
.....	52,490.68	22,872.33	14,100.00	54,900.00	91,872.33	R39,381.65	4,681.66
.....	74,490.68	23,805.89	28,340.00	24,750.00	76,895.89	R2,572.71	2,108.95
2,905.00	93,483.99	13,368.17	47,234.00	.....	60,602.17	32,881.82	34,990.77
.....	104,605.94	31,144.79	47,820.00	150.00	79,114.79	25,491.15	60,481.92
.....	139,768.46	26,425.45	55,920.00	.....	82,345.45	57,423.01	117,904.93
.....	43,175.40	16,934.52	68,994.00	.....	85,928.52	R42,753.12	75,151.81
.....	115,462.67	9,780.44	85,724.00	.....	95,504.44	19,968.23	95,110.04
.....	37,687.05	8,320.47	81,510.00	.....	89,830.47	R52,143.42	42,966.62
.....	76,474.23	17,648.23	65,286.00	24,600.00	107,534.23	R31,060.00	11,906.62
.....	129,778.45	29,760.57	65,289.00	.....	95,049.57	34,728.88	46,635.50
.....	183,362.55	56,378.73	16,323.00	.....	72,701.73	110,660.82	157,296.32
.....	78,609.96	42,857.96	.....	.....	42,857.96	35,752.00	193,048.32
.....	R65,898.74	43,668.34	.....	.....	43,666.34	R109,565.08	83,483.24
.....	128,994.30	37,228.17	.....	.....	37,228.17	91,766.13	175,249.37

Exhibi

Potomac El

Comparative Summary of Gross Earnings, Interest Charges, and Su

Year or period ended.	Gross earnings.	Expenses.	Taxes.	Depreciation.	Total deductions.	Net earnings.	Pro sale rrie
Oct. 1, 1896.....	$8,558.04	16,687.28(1)	269.88	.....	16,957.16	R8,399.12	...
Dec. 31, 1896.....	8,959.85	8,446.47	278.12	.....	8,724.59	235.26	5,9
1897.....	54,004.59	59,116.04	447.18	.....	59,563.22	R5,559.63	...
1898.....	73,983.29	49.041.28	440.29	.....	49,481.57	24,501.72	...
1899.....	85,826.22	63,160.19	447.23	.....	63,607.42	22,218.80	...
1900.....	113,915.54	123,351.06	1,965.70	.....	125,316.76	R11,401.22	...
1901.....	113,163.89	107,514.12	1,896.69	.....	109,410.81	3,753.08	...
1902.....	238,997.87	156,451.81	10,640.49	.....	167,092.30	71,905.57	...
1903.....	638,949.14	322,530.72	32,665.49	.....	355,196.21	283,752.93	9,4
1904.....	742,848.66	325,895.98	33,387.49	.....	359,273.47	383,575.19	...
1905.....	857,668.90	373,723.26	37,245.90	.....	410,969.16	446,699.74	...
1906.....	1,002,141.71	460,831.14	42,789.56	.....	503.620.70	498,521.01	...
1907.....	1,161,700.53	502,980.12	51,413.21	.....	554,393.33	607,307.20	...
1908.....	1,311,298.63	513,576.81	59,257.92	.....	572,834.73	738,463.90	...
1909.....	1,408,044.23	538,643.12	64,742.83	44,645.61	648,031.66	760,012.67	...
1910.....	1,558,093.64	643,045.76	77,995.63	6,688.48	727,721.87	830,371.77	...
1911.....	1,657,646.53	660,402.37	82,062.84	10,708.59	753,173.80	904,472.73	...
1912.....	1,804,279.40	738,971.94	90,387.50	19,339.66	848,699.10	955,580.30	5,35
1913.....	1,935,593.19	789,550.45	98,295.39	14,429.92	901,275.76	1,034,317.43	...
June 30, 1914.....	1,031,440.14	419,914.91	50,818.69	.....	470,733.60	560,714.54	...

R denotes red.

(1) includes a charge of $6,305.71 from Pay Roll account which was transferred to Operating Account.

(2) Discount on $750,000.00 first mortgage 5% Gold Bonds previously charged to Cost of Plant, July 31, 1904.

(3) Interest from June 1, 1899, to November 26, 1902, on the old issue of first mortgage 5% bonds of the Potomac Electric Power Company amounting to $113,388.85 was

NOTE—Claim against United States Electric Lighting Company for damages in re injunction in December 1898 for $12,500.00, rendered void by consolidation in Decembe

EXHIBIT SANGSTER No. 2.

Potomac Electric Power Company.

rges, and Surplus Account as at October 1, 1896, *December* 31, 1896 *to* 1913, *and June* 30, 1914.

ars.	Profits on sale of securities, etc.	Gross income.	Interest paid, net.	Sinking fund for retirement of bonds.	Amortization of debt, discount, and expense.	Dividends.	Total deductions from earnings.	Surplus or deficit R for year or period.
12	.....	R8,399.12	.....	.....	.....	.....	.....	R8,399.12
26	5,904.96	6,140.22	.....	.....	.....	.....	.....	6,140.22
38	.....	R5,558.63	313.33	.....	.....	.....	313.33	R5,871.96
72	.....	24,501.72	21,809.84	.....	.....	.....	21,809.84	2,691.88
80	.....	22,218.80	30,849.47	.....	.....	.....	30,849.47	R8,630.67
22	.....	R11,401.22	36,892.64	.....	.....	.....	36,892.64	R48,293.86
08	.....	3,753.08	39,003.55	.....	.....	.....	39,003.55	R35,250.47
57	.....	71,905.57	51,156.51	.....	.....	.....	51,156.51	20,749.06
03	9,406.51	293,161.44	R20,557.37 (3)	.....	.....	.....	20,857.37R	314,018.81
19	.....	383,575.19	100,305.05	.....	.....	515,000.00	615,305.05	R231,729.86
74	.....	446,699.74	111,538.48	.....	.....	340,000.00	451,538.48	R4,838.74
01	.....	498,521.01	140,883.47	.....	.....	350,000.00	490,883.47	8,637.54
20	.....	607,307.20	200,759.23	.....	.....	400,000.00	600,759.23	6,547.97
90	.....	738,463.90	257,924.13	26,800.00	45,000.00 (2)	400,000.00	728,924.13	9,339.77
37	.....	760,012.67	273,273.04	54,000.00	5,628.12	400,000.00	732,901.16	27,111.51
77	.....	830,371.77	289,782.46	64,520.00	10,723.26	465,346.05	830,371.77	.....
73	.....	904,472.73	299,683.75	77,300.00	10,824.98	475,000.00	862,808.73	41,664.00
30	5,355.95	960,936.25	303,609.08	84,700.00	10,870.53	530,000.00	929,179.61	31,756.64
43	.....	1,034,317.43	323,681.90	92,320.00	10,879.56	500,000.00	1,026,681.46	7,435.97
54	.....	560,714.54	164,608.76	49,159.98	5,439.78	500,000.00	519,208.52	41,506.02

to $113,388.85 was charged to Cost of Plant. The bonds were cancelled November 26, 1902, as provided in Plan of reorganization.
idation in December 1902.

r No. 2.

or Company.

t as *at October* 1, 1896, *December* 31, 1896 *to* 1913, *and June* 30, 1914.

Gross income.	Interest paid, net.	Sinking fund for retirement of bonds.	Amortization of debt, discount, and expense.	Dividends.	Total deductions from earnings.	Surplus or deficit R for year or period.	Accumulated surplus or deficit R.
R8,399.12	.....	.....	.....	.....	.....	R8,399.12	8,399.12R
6,140.22	.....	.....	.....	.....	.....	6,140.22	2,258.90R
R5,558.63	313.33	.....	.....	.....	313.33	R5,871.96	8,130.86R
24,501.72	21,809.84	.....	.....	.....	21,809.84	2,691.88	5,438.98R
22,218.80	30,849.47	.....	.....	.....	30,849.47	R8,630.67	14,069.65R
R11,401.22	36,892.64	.....	.....	.....	36,892.64	R48,293.86	62,363.51R
3,753.08	39,003.55	.....	.....	.....	39,003.55	R35,250.47	97,613.98R
71,905.57	51,156.51	.....	.....	.....	51,156.51	20,749.06	76,864.92R
293,161.44	R20,557.37 (3)	.....	.....	.....	20,857.37R	314,018.81	237,153.89
383,575.19	100,305.05	.....	.....	515,000.00	615,305.05	R231,729.86	5,424.03
446,699.74	111,538.48	.....	.....	340,000.00	451,538.48	R4,838.74	565.29
498,521.01	140,883.47	.....	.....	350,000.00	490,883.47	8,637.54	8,222.83
607,307.20	200,759.23	.....	.....	400,000.00	600,759.23	6,547.97	14,770.80
738,463.90	257,924.13	26,800.00	45,000.00 (2)	400,000.00	728,924.13	9,339.77	24,310.57
760,012.67	273,273.04	54,000.00	5,628.12	400,000.00	732,901.16	27,111.51	51,422.08
830,371.77	289,782.46	64,520.00	10,723.26	465,346.05	830,371.77	.....	51,422.08
904,472.73	299,683.75	77,300.00	10,824.98	475,000.00	862,808.73	41,664.00	93,086.08
960,936.25	303,609.08	84,700.00	10,870.53	530,000.00	929,179.61	31,756.64	124,842.72
1,034,317.43	323,681.90	92,320.00	10,879.56	500,000.00	1,026,681.46	7,435.97	132,276.69
560,714.54	164,608.76	49,159.98	5,439.78	500,000.00	519,208.52	41,506.02	173,784.71

Cost of Plant. The bonds were cancelled November 26, 1902, as provided in Plan of reorganization.

656 This table shows the gross earnings in the first column, expenses, taxes, depreciation, total deductions from gross earnings and net earnings. To the net earnings is added profit on sales of securities, making the gross income available for payment of interest, dividends, discounts and commissions; the balance being the surplus for each year, accumulating as shown in the final column which, as I have explained, agrees with the final column on page 238 of the Accounting Report.

At that point I can show the connection between this earnings table and the table submitted by Dr. Bemis on page 2524 of the testimony.

Still confining ourselves to the United States Electric Lighting Company, Dr. Bemis has selected the column headed "Gross Income" and incorporated that column in the first of his tables which we are referring to. The first item is a deficit of $1,137.25, which agrees with the table on page 2524. (Table Bemis No. 1.)

The next is $16,215.24, and so on right down the column.

Taking up next the Potomac Electric Power Company, I have a similar statement entitled "Comparative Summary of Gross Earnings, Interest Charges and Surplus Account," commencing October 1, 1896, and continuing to June 30, 1914.

(Here follows Exhibit Sangster No. 2, marked page 657.)

658 The final column in that statement is described "Accumulated Surplus or Deficit," and agrees with the surplus shown in my balance sheet, page 236 of the Accounting Report.

The first item is a deficit of $8,399.12 in both statements, and so on. In the same way, Dr. Bemis has taken the gross income as shown in that statement and incorporated it in his table on page 2524.

Taking the eighth column of figures in that earnings statement, you will find that entitled "Gross Income." Dr. Bemis has taken the gross income as shown in that column and incorporated it in his table on page 2524 of the testimony, in the second column headed "Gross Income P. E. P. Co."

Mr. Sangster: If you combine the first two items in the earnings statement, you will get $2,258.90, and so on.

Dr. Bemis wished to bring his figures down to December 21, 1915; so our second earnings statement ending June 30, 1914, is not sufficient, and I have prepared a third statement entitled, "Potomac Electric Power Company Comparative Summary of Gross Earnings, Interest Charges and Surplus Account as at December 31, 1914, and 1915," marked Exhibit Sangster No. 3 and found at pages 2588–91 as follows:

(Here follows Exhibit Sangster No. 3, marked page 659.)

	Gross earnings.	Expenses.	Taxes.
Dec. 31, 1914.....	$2,036,008.57	874,961.62	102,626.2
1915.....	2,165,694.32	923,167.61	108,639.(

R indicates red.

EXHIBIT SANGSTER No. 3.

Potomac Electric Power Company.

Comparative Summary of Gross Earnings, Interest Charges, and Surplus Account as at December 31, 1914 *and* 1915.

Taxes.	Depreciation.	Total deductions.	Net earnings.	Profit on sale of securities, etc.	Gross income.	Interest paid, net.	Sinking fund for retirement of bonds.	Amortis of de discount expens
102,626.23	.....	977,587.85	1,058,420.72	.....	1,058,420.72	331,793.32	98,320.00	10,88
108,639.02	.....	1,031,808.63	1,133,887.69	.....	1,133,887.69	350,438.41	105,400.00	11,02

General Amortization of Capital.

Year.	Amount.	Increase over preceding year.
1913	$282,509.93	99,990.86
1914	398,411.09	115,901.16
1915	558,869.20	160,458.11

SANGSTER No. 3.

tric Power Company.

rges, and Surplus Account as at December 31, 1914 *and* 1915.

n ecu- e.	Gross income.	Interest paid, net.	Sinking fund for retirement of bonds.	Amortization of debt, discount, and expense.	Dividends.	Total deductions from earnings.	Surplus or deficit R for year or period.	Accumulated surplus or deficit R.
..	1,058,420.72	331,793.32	98,320.00	10,882.85	600,000.00	1,040,996.17	17,424.55	149,703.24
..	1,133,887.69	350,438.41	105,400.00	11,021.19	660,000.00	1,126,859.60	7,028.09	156,731.33

tization of Capital.

	Amount.	Increase over preceding year.
..	$282,509.93	99,990.86
..	398,411.09	115,901.16
..	558,869.20	160,458.11

660 This is just a continuation of the second table, and the same gross income column is used in Dr. Bemis' figures. You will see $1,058,420.72 appearing in his table for 1914, the same as given in the earnings statement, and $1,133,887.69 for 1915.

Again referring to Dr. Bemis' table (pages 2522–2525 Bemis 1), the third column explains itself, being the total of the first two columns. The fourth column of Dr. Bemis' — (Table Bemis No. 1) are obtained by computing the difference or, rather, the increases in the depreciation reserve of the Potomac Electric Power Company as may be found from page 236 of the Accounting Report.

Page 236, the ninth column, headed "Accrued Amortization of Capital," and so forth, begins in 1907 with $22,187.35. That is the increase in the reserve for that year, the previous year showing no reserve.

The next year shows $43,504.57, meaning that the reserve was increased in the next year, which is 1908, $21,317.22, and so on down throughout that column.

The last two years, 1914 and 1915, are not shown, of course, in this statement in my report, but I have given the figures in the third statement of the gross earnings and interest charges in a note to the figures contained in that table. That note is termed "General Amortization of Capital." It shows the year, the amount and the increase over the preceding year.

There is still the last column, "Loss on Equipment Scrapped, Sold, etc." That is a distribution of the $388,953.85 shown in the Accounting Report, page 15, referred to as loss on equipment sold, scrapped or abandoned, less amount for depreciation.

Then referring to Dr. Bemis' table between pages 2527–2528, marked C-I "Net Income Subject to Depreciation."

Dr. Bemis explained that the first column was the final result obtained in the preceding table, but not shown here for lack of space.

The first column in "C-I" is obtained from making the additions and deductions called for in Table "B-I."

There is a deduction for loss on equipment sold, scrapped, and so on, $388,953.85, which I will explain in this way: You will notice that the total income for both companies is $11,050,186.62. Dr. Bemis has added the increase in depreciation reserve. He has reversed that. Therefore these increases have to be added to earnings. The total is $629,940.78. If you will combine the two or add them, you will get $11,680,127.40.

Next is deducted (it is not shown, but you could make that deduction) loss on equipment scrapped, sold and so forth, $388,953.85. If you make that deduction you will obtain $11,291,173.55, which is the same total as that with which Dr. Bemis has begun his table C-1. We have a deduction and addition in B-1.

The second column of C-1 is entitled "Organization Expenses, Amortization of Discounts, Interest Charged to Construction and other Deductions." There must be a mistake there. That description is somewhat incorrect. Interest charged to construction should

not appear in that column at all. It was not intended to include any interest.

Now, this column is composed of several items in the earnings statements which I have produced and of certain figures shown in my Accounting Report. Take the first seven items, beginning $2,450, down to the item $24,600. You will find these in the United States Electric Lighting Company statement of gross earnings and surplus.

661 In Earnings Statement 1, in column 11, headed "Discounts and Commissions," you will find the items which I have just spoken of in the second column of Dr. Bemis' table.

The next item is $682,786.53, which is the expense of organization and other expenses of the Potomac Electric Power Company from 1897 to 1899, referred to in the accountant's report page 15, and so on down to the close of the table, which will be found in Earnings Statement No. 2, Potomac Electric Power Company, column 11, "Amortization of Debt, Discount and Expense"; also in Earnings Statement No. 3, the analogous column, "Amortization of Debt, Discount and Expense," for the years 1914 and 1915.

The reason for selecting certain items from the Earnings Statements and certain items from the accountant's report lies in the fact that some of these discounts and amortization expenses were charged to plant or to cost of property, and Dr. Bemis is now treating the items as chargeable to income and a proper charge against the earnings of the Company before showing the net income subject to provision for accrued depreciation and available for interest on bonds and other indebtedness and dividends.

That is shown in the last column of Table C-1 and is made by deducting these commissions and other expenses from this gross income.

The first column of Table D-1, referred to as "Investment at end of Year," is derived from two tables in the Accounting Report. These tables in the Accounting Report are shown on pages 241 and 243 and show the amount of expenditures on the plant each year. * * *

We have ascertained the additions for the years 1914 and 1915 and inserted the amounts; I have used the amounts, rather, in getting the totals for Dr. Bemis' table.

Those amounts were gotten from the reports to the Commission, and I think I might state here that the figures for 1914 or 1915 were obtained from that source.

The next column in Dr. Bemis' Table D-1 is called "Loss on Equipment Sold, scrapped or Abandoned." That is not quite a complete description, but it embraces the items shown in the Accounting Report, page 11. You will find on page 11 that the net deductions from Plant amount to $992,488.63. This amount is distributed over the years to which they apply, approximately where we cannot definitely ascertain, and shown in the second column of Dr. Bemis' Table.

The next item is $138,631.37, which is the first of the items used

Item.	
A. Land	
C. Structures	
D. Power Plants—Substation Equipment	
E. Transmission and Distribution	
G. General Equipment	
Total base costs	
H. General Costs	
Total	
Materials and Supplies	
Working Capital	
Grand total	

BEMIS EXHIBIT No. 1.

Potomac Electric Power Company.

Totals as Adjusted by Charles L. Pillsbury November, 1916.

	Reproduction cost "A."	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation.	Ratio of "B" to "A."
.....	$433,792.00	.....	$433,792.00	100.	....	.....	.....	$433,792.00	100.
....	749,514.00	.....	749,514.00	73.69	1.91	$14,352.52	$197,181.45	552,332.55	73.69
.....	2,497,334.89	$196,898.73	2,300,436.16	68.36	4.58	105,247.10	727,856.49	1,769,478.40	70.85
.....	4,607,444.01	697,846.99	3,909,597.02	80.01	2.59	101,177.00	742,449.36	3,864,994.65	83.89
.....	87,919.84	8,551.93	79,367.91	69.05	13.54	10,746.51	24,567.18	63,352.66	72.06
.....	$8,376,004.74	$903,297.65	$7,472,707.09	77.36	3.10	$231,523.13	$1,692,054.48	$6,683,950.26	79.80
....	1,595,666.00	.....	1,595,666.00	87.93	1.58	25,211.52	192,653.00	1,403,013.00	87.93
.....	$9,971,670.74	$903,297.65	$9,068,373.09	.....	....	$256,734.65	$1,884,707.48	$8,086,963.26	.....
.....	128,893.08	.....	128,893.08	100.	....	.....	.....	128,893.08	100.
.....	135,000.00	.....	135,000.00	100.	....	.....	.....	135,000.00	100.
.....	$10,235,563.82	$903,297.65	$9,332,266.17	79.80	2.75	$256,734.65	$1,884,707.48	$8,350,856.34	81.59

in the last column of Table B-1, Loss on Equipment Sold, Scrapped, and so forth.

The next item is $392,883.37. That is a combination of two items on page 11 of the Accounting Report, the extraordinary expense, bond discount, and so forth—I need not read all the items—$389,920.72, together with $2,962.65, interest charged to cable account in 1899.

The next three items are obtained from Table B-1, the last column. The item of $10,651.41 is for services and expenses in connection with consolidated mortgage, contract for power, supply, and so forth, in 1903-1906, referred to on page 11 of the Accounting Report.

The next and all the following items beginning with $112,265.59 are taken from the final column of Dr. Bemis' statement B-1. In that way you will account for all of the $992,488.63 deducted from cost of plant and equipment in the Accountant's Report, page 11.

The third column in D-1 is, of course, the accumulation of the items in the previous column.

The fourth column, referred to as "Investment at End of Year as Adjusted," is found by deducting the third column from the first.

Now, turning to Table C-1, pages 2527-2528. This table follows immediately from the results obtained in the previous tables, and requires no further identification.

662 At which time all three of these tables, S-I, II and III, were offered in evidence at the same time over the objection and exception of the Potomac Electric Power Company and the right to cross examine was reserved to the company.

663 CHARLES L. PILLSBURY.

In the same way Mr. Charles L. Pillsbury was recalled to identify certain tables referred to by Dr. Bemis on page 2443, marked "Exhibit Bemis No. 1," found on pages 2613 to 2616, as follows:

(Here follows Bemis Exhibit No. 1, marked page 664.)

665 As to which Mr. Pillsbury testified that this particular sheet was not the sheet that had been submitted and that he had not seen it before, and that he is unable to speak with regard to this particular sheet now, although he can take it and compare it with what was submitted—"Just as it was submitted, except that certain figures which when it was submitted were in pencil were afterwards put in in green ink, and the notation was put on the bottom 'Figures in green ink approximately correct.'" That notation was not on the statement when it was made, although it was made verbally. Apparently this sheet, as submitted to Dr. Bemis, did cover all of the items on this typewritten sheet. I stated before that apparently some figures had been added. That was because this sheet that I am now talking about is not the same as was submitted to him by me personally. After the sheet I submitted was submitted, Dr. Bemis asked to have similar calculations carried out with respect to another column or two which was done by our employes, and they are apparently correct, except the green figures, which are approximately correct, as I stated before, and, I should say, within one-half of one per cent. The reason for that is that some of those depreciation figures involve a great many calculations if carried out exactly mathematically correct. Short-cut methods were adopted, and there was no time at the time to do all of that and have the sheet in time for Dr. Bemis' special usage of the moment. This sheet, then, is the one submitted by Mr. Cooper under my general direction.

And the same was admitted in evidence over the objection and exception of the company.

The paper was then marked "B-1" which he stated appeared to be the first sheet submitted to which he had just referred. The other was submitted afterwards, involving some additional calculations, which I did not know about at the time I testified before. This also was submitted with the statement that the results were approximately correct and not absolutely correct.

Mr. Syme: I now hand you Exhibit Bemis No. 3. With reference to that third table, which I have handed you, Mr. Pillsbury, marked No. 3, Dr. Bemis, says:

"This new table, my third table, is based on the two just given but with one addition, namely, the physical property outside the District of Columbia or devoted to the uses of the Company outside the District. That was based entirely upon some figures prepared for me, at my request, by Mr. Kappeyne."

So, I will only ask you what you know about the figures contained in that third table, with which you had something to do.

Mr. Pillsbury: I do not know anything about that.

Mr. Syme: That is all right if you don't know anything about it. * * * that is the end of it. I do not know that it is necessary to identify it any more than what is given in here. It is based on two prior tables and what Mr. Kappeyne will testify to later.

Mr. Pillsbury: Dr. Bemis has just indicated to me the sources from which certain of these figures were derived. I think I can now verify

them. I have checked those figures from figures appearing on Summary Sheet 58 of Detail Summaries, Volume 1 of my report on Reproduction of Physical Property of the Potomac Electric
666 Power Company, and from the Sheet entitled "Bemis Exhibit No. 2." I find one error. The sum of the second column under the heading "Additions," that is, the grand total of the column "Additions" should read "$270,475.66" instead of "$270,575.66." That, however, does not affect the final figure which was used, namely, the sum of grand total of the third column headed "Total Within District."

Apparently Reproduction Cost Per Report, the first heading of this Bemis Exhibit No. 3, refers to the Base Reproduction Cost plus the corresponding General Cost or Overhead Charges. Those figures were taken directly from my Summary Sheet 58 by adding together the figures appearing over each other along the bottom of that Summary Sheet following the designations Base Reproduction Cost and Amount General Cost, respectively. For instance, as to Land, the amount given in Reproduction Cost Per Report of Bemis Exhibit 3 is $492,239. That is the sum of my figures of Summary Sheet 58, $433,792 and $58,447.

Now as to Structures, the amount $908,537 was obtained in the same way.

As to Power Plant and Substation Equipment the amount $2,952,754 was obtained in the same way.

Then those three figures are added together to derive $4,353,530 opposite the word "Total," and then below that we have the word "Other." The amount with respect to that word "Other" represents the sum of ten sets of figures given on my Summary Sheet 58, constituting the right hand five vertical columns of two figures each opposite the word "Base Reproduction Cost" and "Amount General Cost." Or, in other words, the amount $5,347,665 opposite the word "Other" is the sum of our Base Reproduction Cost and General Cost respectively, as to transmission and distribution services, meters, paving and general equipment, all as taken from Summary Sheet 58, but the total $9,701,195 will not carry the modifications made in my report. That is strictly from Summary Sheet 58 and checks with it.

The next column, headed "Additions" refers to and only to the modifications of which I have just spoken. The word "Additions" means additions which I have made by reason of the modifications which I have made. The first figure opposite the word "Structures" ($10,452.92) is taken from this Bemis Exhibit No. 2, and is the sum of the figures there stated, and so on.

Then the only thing remaining is Mr. Kappeyne's figures on the property outside of the District headed "Outside District" and another vertical column headed "Grand Total."

667 Dr. BEMIS.

And at this point, being all the testimony, Dr. Bemis' direction examination by Mr. Syme was resumed as follows:

Mr. Syme: Doctor, I refer you to Bemis Exhibit No. 1.

Dr. Bemis: In Bemis Exhibit No. 1, which was a copy of a paper that Mr. Pillsbury has testified to this morning as prepared in his office by Mr. Cooper, there are three slight corrections, not in any total, but in certain lines, which I wish to make.

Over the third column of figures are the words "Depreciation Cost" which should read "Depreciable Cost."

In that same column "Materials and Supplies," $128,893 should be increased by eight cents to make the copy perfect, that is all.

The last line is more important, "Working Capital." It is given here as $15,000. A 3 was omitted between the figure 1 and the figure 4. It should be $135,000. The total, however, was correct. The total underneath it, $9,332,266.17 was all right, and the other columns were correctly copied.

Bemis Exhibit No. 2 is correct needs no corrections.

Mr. Pillsbury has called attention just now to the fact that one total is $100 out of the way. That is the total headed "Additions," which here appears as $270,575.66, but should be $270,475.66; but the subsequent totals made up out of that were correct. It was simply a typographical error.

And the Exhibits as corrected were gone over and as corrected are found in the transcript 2613 to 2620.

Dr. Bemis: I want to make a correction on page 2514 of the report of my testimony of the last day of the hearing, where a table is given which is a comparison of Reproduction with Recorded Cost, and after the table the statement is made that "this general charge and base includes Mr. Kappeyne's estimate of $492,000 for property outside of the District." It did not include that estimate. It was intended that it should be put in, but by an oversight it was omitted, and therefore I have prepared the same table with that addition of the $492,000 of Mr. Kappeyne's estimate of the property outside of the District, and right at this point perhaps this might be introduced. At the bottom, in copying this table in, I have a little notation reading "Including all property outside the District as valued by Mr. Kappeyne, although about eight per cent might be classed with Sub-station Equipment." I placed this for convenience in a hasty tabulation this morning in the fourth line without waiting to take a little of it out and put it into the third line of "Power Plant and Substation Equipment, but it makes no difference in the grand total which I subsequently used. It is, therefore, convenient to leave it there. It was used merely for convenience to express estimated reproduction cost before adding general charges. It included Contractors' Percentages, but did not include what Mr. Pillsbury refers to as General Charges, sometimes called General Overhead Charges.

668 This table is as follows, marked Bemis Exhibit A.

BEMIS EXHIBIT A.

Comparison of Reproduction with Recorded Cost within and without the District.

Description.	Base.	General charges.	Total.	Recorded cost.
Land	$433,792	$58,447	$492,239	$353,361
Structures	749,514	169,476	918,990	773,279
Power Plant & Substation Equipment	2,497,335	509,931	3,007,266	2,689,594
Other property (1)	5,126,167	919,234	6,045,401	4,053,322
	$8,806,808	$1,657,088	$10,463,896	$7,869,656

(1) Including all property outside the District as valued by Mr. Keppeyne, although about eight per cent might be classed with substation equipment.

670 Subject to the exception of the company in addition to the reasons heretofore assigned upon the additional ground that it is based in part at least upon certain intersectional adjustments in the accountant's report, to which we have been denied access, and the detail of which has never been furnished.

671 Dr. Bemis: If there are any inaccuracies in the intersectional adjustments they would affect the items of that statement but would not affect the total. The total, $7,869,656, would remain, so far as any inaccuracies of the intersectional adjustments are concerned. And the only column there that the intersectional adjustment could at all affect or would at all affect is the column designated "Recorded Costs".

Objection overruled and exception noted.

The witness then continued—page 2626:

This new page of tabulation is designated "Comparisons of Reproduction and Recorded Cost Both for the Property New and for Property New Less Depreciation Within and Outside District." The first half of the table is really nothing more than what we have already had, only it does not separate the so-called Base from the General Charges, but combines the whole reproduction estimate of the Recorded Cost.

The last half is the Cost New, Less Depreciation, and is applied to the reproduction estimate and the same percentages that were used in the Reproduction Cost were applied to the Recorded Cost. That is on the assumption that if Property, Structures, for example, that would cost to reproduce, $699,743.98 or $918,990 depreciated a certain percentage, then if the actual cost was $773,279 it would not affect the percentage of the depreciation that has accrued. So the percentages which I worked out for the weighted percentages for the Base and the General Charges on the Reproduction Estimate I applied to the Recorded Cost. As an illustration of how that was done, I might take the first important item where there was depreciation, namely, structures. The $918,989.92 given in the second line of the first column of figures is the total of Mr. Pillsbury's estimate and the $699,743.98 obtained in this way in the second line of the second half of the table. He had estimated the depreciation on his Base figure entering into Structures which was $749,513.92 as such that the remaining value was 73.69 per cent or $552,316.81. The Overhead or General Charges on the Structures when new were taken at $169,476 by Mr. Pillsbury, and the ratio of present value to new 86.99 per cent, which applied to those General Charges would make a depreciation down to $147,427.17, then the total of the Structures by that as regards their Base Cost and General Charges when new, $918,989.92, and at present they were taken at $699,743.98, that being the sum of the depreciated cost of the Base which I just gave as $552,316.81 and of the General Charges which I just gave as $147,427.17. Then I computed the percentage which this total present value of the Base and the Overhead of the Structures bears to new, and I found it to be 76.44 per cent. Now, that was the weighted percentage of present to new. Then I applied

76.14 per cent to the Recorded Cost of the same Structures which was $773,279, and I reached the figure given in the last half of the page under "Structures", Recorded Cost, $588,775, which was the Recorded Cost Less Depreciation.

This table then brings out the fact that on the Reproduction Estimate, including Mr. Kappeyne's estimate for Property Outside the District, the Reproduction Estimate New is $10,463,896 and the Recorded Cost $7,869,656. The Estimated Reproduction Cost Less Depreciation is $8,497,989, and the Recorded Cost $6,336,336.

Starting with that figure, I have a sheet here——

Mr. Syme: Now, before you go to that, this table as I understand, which I now want to have put in the record, is made up from the other tables that you have already submitted, and by the method that you have just indicated with reference to structures. Is
672 that true?

Dr. Bemis: Yes, sir.

Mr. Barbour: We object to the introduction of this table for the reason that it is based upon data which has not been sufficiently established, and because the comparison is immaterial and incompetent, and because the witness is incompetent to make the comparison or to draw the conclusions upon which the table is based.

Chairman Kutz: The objection is overruled.

Mr. Barbour: I note an exception.

BEMIS EXHIBIT 3A.

Comparisons of Reproduction and Recorded Cost, Both for the Property New and for Property New Less Depreciation within the Outside District.

Description.	Reproduction estimate.	Recorded cost.
Land	$492,239	$353,361
Structures	918,990	773,279
Power Plant & Substation Equipment	3,054,365	2,689,694
Other Property	5,998,302	4,053,322
Total	$10,463,896	$7,869,656

	New.	Less depreciation.
Land	$492,239	$353,361
Structures	699,744	588,775
Power Plant & Substation Equipment	2,231,400 (1)	1,965,090
Other Property	5,074,606 (2)	3,429,110
Total	$8,497,989	$6,336,336

BEMIS EXHIBIT 3A.—*Continued.*

(1) 73.06% of $3,007,265.89 or $2,196,989.91 in District.
73.06% of $47,099.00 or $34,410.53 outside District.

$2,231,400.44

(2) 84.6% of $5,450,209.01 or $4,698,028.93 in District.
84.6% of $445,126.00 or $376,576.60 outside District.

$5,074,605.53

The witness then introduced Bemis' Exhibit 4-A as follows:

673 BEMIS EXHIBIT 4A.

Final Summary.

After Deducting Depreciation.

Description.	Reproduction cost.	Recorded cost.
Cost less Depreciation	$8,497,989	$6,336,336
Add:		
(Preliminary)	75,000	.....
For General Charges	.....	200,000
Materials and Supplies	150,000	150,000
Cash Working Capital	110,000	110,000
Total	$8,832,989	$6,796,336
Deductions on Patents and Franchises	.....	65,266
Deductions on Paving and General Charges on Land, approximately.	275,000	.....
Total	$8,557,989	$6,731,070
Add for possible errors and omissions	142,011	118,930
Total	$8,700,000	$6,850,000

and explained the same as follows:

I have two columns, one headed "Reproduction Cost" and one headed "Recorded Cost." The first line, "Cost Less Depreciation" is the final line of the previous table, Bemis Exhibit No. 3-A. Then I have added $75,000 in the Reproduction Cost for Preliminary Estimate and for general charges.

The $75,000 does not differ from previous testimony and there is nothing in that table that differs from his previous testimony of several days ago. The General Charges, I did not state the definite figure. I put in the statement that for interest and taxes during construction from two per cent to three per cent might be added, and other general charges not recorded on the books. I make that allowance here now at $200,000. Materials and Supplies, I had stated that I did not change the report of the accountants, which is $150,000.

Cash Working Capital, $110,000. That brings in a total.

Then I did not testify directly, although I merely stated that Patents and Franchises that were reported by the accountants, I believed had expired and should be written off, and that was $65,266.

I also stated that about one-half of the paving over the conduits, and certain general charges on the Land, those particularly relsting to Interest and Taxes, should be excluded, and I have taken out, assuming some depreciation, an allowance of $275,000, which is only a general estimate, but approximately correct, I believe.

Then I add for possible errors and omissions a purely arbitrary allowance which, however, brings the total to even figures, namely, Reproduction Cost, $8,700,000, and Recorded Cost, $6,850,000. Those figures represent conclusions as to those two elements, after taking out depreciation.

The witness believed that $8,700,000 is a fair and reasonable Reproduction Cost to be allowed for this property.

674 Depreciation—Bemis.

Witness then continued: I have thought a little more about the question the Commissioner put to me as to what would be the situation in connection with the Sinking Fund, the method that should be taken, and when that should be started.

I should think the Company should reasonably be expected to put into a Sinking Fund, within a reasonable time (perhaps not at once) the amount that should be in the fund on the Sinking Fund principles. Since that represents a depreciation of the past, however, that is, the amount that would accrue up to date, I should consider that that should have been taken care of in the past, and if there is no fund to take care of it, it should come not out of surplus but out of reasonable rates of return in the immediate future. In other words, as making up a debt to the property on the part of the owners.

675 Before proceeding with the cross-examination, motion was made to exclude all of the testimony and all of the tables of figures introduced in evidence by this witness, on the following grounds:

1. Because all of the testimony and tables of figures are incompetent and irrelevant to any legitimate purpose of this investigation.

2. Because said testimony and tables of figures are based upon reports that are incomplete and inaccurate.

3. Because said tables of figures are not the result of personal investigation or personal consideration by the witness.

4. Because, while said tables of figures are purported to be compiled from the books and records of this respondent, it appears that the original books and record entries have been disregarded, and without adequate reason shown or stated.

5. Because said tables of figures introduced by the witness, and concerning which he has testified, are the result of hearsay and of unidentified and undesignated reports, rumors and investigations made or repeated by other and unidentified third persons, communicated to, and received by the witness and persons from whom he received them, by means of other channels not stated or shown, without notice, knowledge, means of knowledge, or opportunity of investigation, examination, or verification on the part of the respondent and with no showing of the identity, knowledge or means of knowledge of the said third persons, nor the substance, contents, or accuracy of said reports, rumors, or investigations.

6. Because the tables of figures introduced by the witness, and concerning which he testified, are based upon certain intersectional adjustments made by Mr. Sangster, the details of which he has not furnished the respondent when requested for the purpose of enabling respondent to verify the correctness thereof.

which motion was overruled and an exception noted, page 2638.

And without waiving the exception, the witness was cross-examined beginning on page 2639.

In the course of which, he (Dr. Bemis) stated he left the University of Chicago because he was told that because his views were like those of Prof. Ely, his old professor of John- Hopkins, now professor of the University of Wisconsin, and that no man with those views could be professor of the University of Chicago; and on page 2643 he says—"I was forced out."

Commissioner Newman: You were fired?

Dr. Bemis: Yes, it amounted to that. I was forced out.

Mr. Barbour: Your resignation was requested and you resigned?

Dr. Bemis: Yes, it was that, yes, sir. I did not formally resign; simply the trustees discontinued my work.

Commissioner Newman: They fired you?

Dr. Bemis: It amounts to that; I should call it that, in practical language.

676 Commissioner Newman: You are rather proud of it, are you not?

Dr. Bemis: Well, it did not do me any damage.

Commissioner Newman: I would be.

Mr. Barbour: Did you not state that you were forced out on account of your socialistic views?

Dr. Bemis: I don't remember that I ever said that. Some call some things socialistic that others do not. I never was a socialist, and don't remember that I ever said that I was a socialist, because I am not; that he was appointed to the Bureau of Labor in the State of

linois, by Mr. George Shilling, chief*h* of the bureau; he didn't know that Mr. Shilling was a manager of the newspaper owned by Spies one of the *M*aymarket anarchists; he didn't know anything about it although he knew Mr. Shilling was appointed by Governor Altgelt.

From there he went to the Agricultural College of Kansas and wrote a book on Municipal Monopolies which went through four editions but is now out of print.

If there had been sufficient demand and a large amount of money in it he would have rewritten it. It was used extensively but he cannot name what colleges they were that used it as a textbook. He said professors in the American Economics Association had informed him from time to time but does not remember now who it was.

He was one of the five members of the National Civic Federation on the valuation of about forty municipal utilities and private —, in England, Scotland, *Scotland,* Ireland and the United States.

He with Walton Clark, Mr. Maltby, Professor Goodenough, now President of John- Hopkins, and Mr. Edgar, president of the Boston Edison Company, and Mr. Sullivan of New York, were the five members that hired the experts and supervised the work for the National Civic Federation general committee.

He did not value these forty utilities but directed to a certain extent the policies.

He had particular charge of the work in America though he went abroad for three or four months.

He valued some fifteen or twenty over here in that work.

The Civic Federation appointed a special committee.

The report was intended to be summarizing the comparative results of municipal and privately owned utilities.

It may have had some influence upon the thought of the country in regard to municipal action toward these matters, but it was not made for a prospective investor.

He would not consider this work entirely superficial. The accounting work was done by Marwick, Mitchell & Company, one of the largest firms in America, and the engineering was done by Mr. William Newbiggins, one of the best known experts in the world.

They were not considered as making superficial valuations. * * *. But the idea was not to get more than an approximate valuation, and yet they wished one that would be correct in its general presentation of the situation, and efficiency of management, cost of operation, service, quality and so forth. Compared with the details that we have here it was just a short cut method of approximating value.

The expense of the whole forty in Europe and America was less than has been expended in this single investigation here. He thinks the result was correct within ten per cent.

The idea was to compare with privately owned worked.

The municipal plants selected were for street lighting only.

The waterworks were for both consumption.

They agreed with one dissenting vote that all bars should be thrown down every city should have the right to own or not to own utilities

if it wished, under proper accounting restrictions and financial safeguards.

The report was not against municipal ownership—it would
677 not have been so completely suppressed if it had been; it was pretty nearly suppressed. It was never very fully circulated. He does not mean by "circulated" that people would not read it. It was not as widely disseminated as it should be. And that no single piece of property was ever bought or sold under these valuations.

He does not know how far it may have been taken into consideration by anybody that bought or sold these properties.

Asked if he was an expert on public opinion, he said—"Well, we all try to study it somewhat."

He reiterated that the report was not against municipal ownership.

Mr. Barbour: Was not the proposition rather that the right of municipal ownership should be the gun behind the door, rather than favoring municipal ownership?

Dr. Bemis: I so stated this morning, that it did not favor or oppose, but said every city should have the right.

Mr. Barbour: Didn't they express a preference for private ownership over municipal ownership?

Doctor, didn't that report advocate the right to sell and buy franchises?

Dr. Bemis: I do not recall the wording. It is ten years ago, and I do not recall the exact wording on that point.

Mr. Barbour: You concurred in that report and signed it?

Dr. Bemis: Yes. It was more or less of a compromise report which we all got together the best we could and tried to get a report that we could all sign if possible. We all more or less differed on some points, but we finally got a report that all but one were willing to sign.

In the Des Moines case he advocated the accounting method of arriving at value. Though his testimony is based on compartaive data very largely of other companies, he did not have access to their books and didn't make any valuation at all.

He does not recall which method he recommended in the Des Moines case; didn't fix any value there at all.

He recommended a reduction of rates in Indianapolis but does not remember the case very well.

The next was in Detroit where he appraised the franchises there for the Detroit Street Railway Commission. He had nothing there to do with the physical valuation at all and merely put a valued on the franchises. Asked how he valued the franchises in that case, he said "The street railways had a fixed right by law which could not be interfered with by the city and it was the value of that contract that he tried to determine and he did determine it and put a specific value on it in the neighborhood of $8,000,000—it was many millions. The franchises were a definite fixed term franchise, some of which were set up perpetually, and all of which had still from ten to twenty-five years to run, or thirty years, perhaps, and some of the more profitable were some of the longest lived. I was simply finding the present

worth of the probable earnings under the grant during the life, and capitalized the earnings on the franchise after deducting the value of the physical property.

Does not remember the rate at which he capitalized it but advised that the city pay that for it. In such cases where the company has a franchise like that, and desires to purchase it, it is the only way they can get the property, and it may be, and in this case, I think it proved to be, the case that it would have been a wise investment. That is an illustration of his idea of the difference between value and fair value in a large measure.

The absolute right to have a fixed charge for a definite term of years not merely a charge that is reasonable and which might be reduced by the orders of a regulating body or by a government body was the situation there that entered into its value that you do not find in most utilities. It is a contract relation. Street railways are about the only utilities that have just that kind of rules, and that only in some of the older fixed term franchises. The cities have received nothing for those franchises and the companies paid nothing for them.

678 The report was adopted by the Commission which had been made by Cooley and others, and then as they were about to submit to the people a proposition to issue bonds for the purpose of purchase, for the company accepted the award as well as the Commission, the power did not exist in the City of Detroit, so the matter fell to the ground through the lack of constitutional or legal power and nothing ever came of it.

He testified in Springfield where the rates were reduced.

Witness had testified a great deal in tax cases in Ohio.

Mr. Barbour: You have spoken of your testifying in tax cases. Your attitude in tax cases is entirely different from your attitude in valuation and rate cases, is it not?

Dr. Bemis: Yes. A tax is based on what I call values de facto, and rates on value de jure. There is all the difference in the world, in my opinion. Income is always subject to taxation whether it is rightly earned or not.

But he holds that all taxation has some relation, a more direct relation to the value of the property than a rate case. The Ohio railroad cases were mostly on the value of the physical property. I was later in Maryland and had to do with the earnings in the streets of the gas and electric light companies, but the railroad cases in Ohio were mostly cases of actual physical property.

He did not reduce railroad cases to income basis so much as he did the Maryland case.

He subsequently modified his statement in regard to Ohio and said those cases were of physical property; that they are based very largely on the returns the railroad companies had made to their stockholders as to their property, as to the increase of the same in recent years. It was easy to show they had reported the increase of property in five or six years equal to what they were being assessed for.

Cannot give the names of any of these cases.

The name of one—Lake Shore, the Wheeling and Lake Erie.

He subsequently testified in Columbus, Ohio, where a sliding scale was used though he didn't recommend that. He approves of it to some extent.

He likes pretty well the Cleveland sliding scale which he helped to draft.

He helped to draft one lately in Dallas where he went in the employ of a newspaper.

Mr. Barbour: You have been in the employ of various newspapers in exploiting campaigns against utilities, haven't you, Doctor?

Dr. Bemis: No, sir; I haven't done very much of that. I have been employed by newspapers hardly at all. (Thought he was employed by a newspaper in the Dallas case.)

Mr. Barbour: Haven't you been employed by the Hearst papers in similar campaigns?

Dr. Bemis: In 1906, and again two or three years later, I think; well, it was ten or twelve years ago, by the Boston-American, the last I can recall. There were only two instances, I think. One was in New York, at Albany, when the price of gas was $1.25 in the City of New York, and the New York World and the New York Journal, just organized, got up a fight for a reduction of the price of gas, and I was asked by an old friend who was then editor, and still is editor, whom I had known in Chicago, to help, and I went to Albany and appeared before the Legislature and gave them some data.

Then, in 1905 and 1906, the Boston gas case started. They joined with the City of Boston in it.

Mr. Barbour: You were employed on the New York case by the New York Journal?

Dr. Bemis: That was about the time of the Boston case that this happened. There were two or three New York cases. The first case was where the rate of $1.25 was reduced to $1.00. That was in 1896. Mr. Willis J. Abbott was the man who asked me to come on to Albany. Then, in 1906 or 1907, I have forgotten just when it was, the Stevens Committee had reported in favor of 80 cent gas. * * * Then
679 the State of New York appointed a gas commission consisting of three men, with the understanding that they were to take up the gas and electric light situation and investigate the gas situation in New York City. Mr. Willis J. Abbott again sent for me to come on to appear before that Commission.

Mr. Abbott was still on the Journal or the American; does not know whether it was morning or evening papers but it was one or the other.

Mr. Barbour: So you have been engaged by newspapers in Columbus and New York?

Dr. Bemis: Yes, and Boston. But not in Chicago though he went back there for money. This just reminds me, that I came to Washington for a short time. I had forgotten about it. I was here two days, I think, one time. I think that was over ten years ago. I

think a paper here sent for me. I think it was the Times, but I am not sure.

Mr. Barbour: Then you came for money, too, didn't you?

Dr. Bemis: Yes.

He does not recall any other instances where he was employed by newspapers.

In the Gas Case here he testified before a Committee of Congress with regard to certain reports the company had put in in which they tried to justify the paving over their mains as part of their capitalization.

Following his services in Columbus, Ohio, in 1901, he went to Cleveland.

His home was in New York where he organized or helped Prof. Cummins to organize, a bureau of economic research, backed by such men as R. Fulton Cutter, Everett Mason and Tom Johnson.

That the Government sent him to Europe to study industrial education and then about 1901 Mayor Johnson asked him to become Superintendent of the Water Works.

The witness had made a special study of municipal management and had certain ideas as to how municipal utilities should be managed.

Had run across Johnson by accident while in London and told him his ideas and certain methods such as prevailed in Dalrymple's work in Glasgow. Johnson told him afterwards that that, more than anything else, was what he wanted him for in Cleveland to put those ideas in effect.

Mr. Barbour: He employed you on your theories rather than on any practical experience you had had, did he not?

Dr. Bemis: He said he liked the views I had, and he wanted me to try them out, and we were there together eight years.

While in Cleveland he had the Cleveland Waterworks valued.

The principles involved the actual investment which had been pretty carefully kept, but where he could not get that he estimated the cost of reproduction.

During this time he was not employed by any other city, until about 1905, but after that year he was employed to a certain extent, and to an increasing extent, and made arrangements to be off a great deal from Cleveland, foregoing his salary when gone, consulting and doing that kind of work. That is the way I managed to do so much work on the Consolidated Gas case. In that case he was more of a rate expert.

Witness does not remember that the rate fixed in Saginaw was set aside by the courts as being confiscatory.

Called in the Cedar Rapids Gas case he testified as to certain leaks he had discovered in the gas-holders which afterwards turned out to be sparrow feathers and slime, saying somebody called his at-
680 tention when he was walking around, and he said it might be, but it did not amount to anything.

Mr. Barbour: You are safe in stating, are you not, Doctor, that you testified in favor of any reduction of rates that was proposed?

Dr. Bemis: Yes, in every case I think I have been called in on, where there is a general knowledge of quite a prosperous condition of things that allows of a reduction. The poorer companies very rarely, that is, the gas and street railway companies, get into litigation because the people know their condition.

Mr. Barbour: Did you ever strike one where you did not approve of a reduction?

Dr. Bemis: Yes.

Mr. Barbour: Where?

Dr. Bemis: The Street Railway & Gas Company of Dallas, last year. When I say the Street Railway & Gas Company, I mean the Gas Company of Dallas, the local company, the Lone Star Company, that supplies gas at wholesale at the city limits. I held that company could make a reduction in the bulk supply, and the retail company, called the Dallas Gas Company, I held could not be asked to make a reduction in its receipts.

Mr. Barbour: But you wanted the company that it bought from reduced, and then you would reduce——

Dr. Bemis (interposing:) Certainly, without any injury to the local company.

Mr. Barbour: Can you name any other case in which you have not been able to approve of the suggested rate in a case in which you were employed?

Dr. Bemis: Well, in all but one or two cases either the courts or commissions made reduction, so I have always felt I was pretty nearly right. They may not have gone as far as I may have testified, but in almost all the cases, outside of perhaps one or two like the Saginaw case, I think there were reductions affected.

Mr. Barbour: Have you ever had one of your valuations sustained by any court or any commission?

Dr. Bemis: Oh, I couldn't say. They generally take the ground somewhere in between the reproduction cost and the investment cost, while I hold the investment cost is entitled to very much greater weight.

Mr. Barbour: Isn't that one of your policies in testifying, Doctor, to cut down just as low as possible, with the hope that the Commission will take something above what you allow in the way of a compromise?

Dr. Bemis: No. My theory is to get the absolute investment cost, and I instruct my men never to attempt to find or to report any facts falsely, but to give me just what they find and be absolutely free. I realize that investment cost is generally much less than the capitalization, much less than even what the reproduction cost will give.

Mr. Barbour: Can you name a single case that you have testified in wherein a commission has sustained the valuation made by you?

681 Dr. Bemis: I *could't* say exactly. I know they have sustained the rates I was working for in a great many cases.

Mr. Barbour: Have they not uniformly, when the question of valuation was at issue, founded higher valuations than you have found or recommended?

Dr. Bemis: I think they may have often, and more often, made lower than the company's experts wanted.

Mr. Barbour: I am asking you, first, Doctor, if you can name a single commission or a single court that has ever sustained a valuation made by you?

Dr. Bemis: Well, I don't know whether I could or not. I don't recall any case where it has been exactly the same, yet I was employed not more than two or three years ago to report on the valuation to the New York Commission of the Second District, and I think they took my report and accepted it as final.

Mr. Barbour: In what case was that, Doctor?

Dr. Bemis: That was the West Chester case.

Mr. Barbour: They took your valuation and adopted it?

Dr. Bemis: I never knew just what Mr. Decker did with my report, but I understand from what he said afterwards that he had accepted it. I do not know just what was done with it, however. He expressed great satisfaction with my report, I know that.

Mr. Barbour: Is it not a fact that your valuation was not used at all in that case?

Dr. Bemis: I don't know. All I know is that Dr. Decker spoke so well of it that my views on valuation were accepted by the Joint Committee of the House and Senate of New York on the telephone property at New York City two years ago.

The witness finally named the Lake Forest Water case, where a rate lower than he had advised was adopted.

Mr. Barbour: Did you not testify only on value there?

Dr. Bemis: I testified on earnings.

Mr. Barbour: And rate of return?

Dr. Bemis: The rate of return, a reasonable rate and earnings.

Mr. Barbour: It was a small company, and didn't you find a valuation of $137,832, and the Commission found $150,000, didn't they?

Dr. Bemis: I think possibly that is right.

Mr. Barbour: And didn't you advise a 6¼ per cent rate of return, and didn't they allow a 7 per cent rate of return?

Dr. Bemis: That may be. The company is not earning 7 per cent. I know the rate they fixed was lower than the rate I had urged.

Mr. Barbour: I have the transcript of the evidence in that
682 case, and if you can point out to me where you advised a rate any different I would be glad if you would do so.

Dr. Bemis: All I know as to what I did, without going back to it, was that I had computed for me what the returns would be at the proposed rate, and testified as to what it would yield.

Mr. Barbour: Doctor, if this Lake Forest case is an exception there must have been a manifest error somehow in your calculations if you advised a 6¼ per cent return on $137,000 valuation and they allowed a 7 per cent return on $150,000 valuation. If you can tell

me how they fixed a lower rate than you recommended I would be glad if you will explain it to this Commission.

Dr. Bemis: They had a different interpretation of the operating expenses and of the net income and of the growth of the business.

Mr. Barbour: Doctor, I have asked you, referring to cases where you have fixed value under oath, and where you have fixed rates under oath, if you had ever been sustained by any commission. I will now ask you if in any case where you have, under oath, testified before a commission or a court, you have fixed a rate of return higher than that allowed by the court or commission?

Dr. Bemis: It has been the same in some cases.

Mr. Barbour: But never lower?

Dr. Bemis: I don't recall any case.

Mr. Barbour: Doctor, there have been one or two cases I believe in which they have adopted as low a rate of return as you have recommended. Can you name those cases?

Dr. Bemis: I think that the rate I recommended of 6 per cent—I think that was the rate in New York—it was the rate that was granted—or a little less than 6 per cent.

Mr. Syme: That was the Consolidated Gas Case?

Dr. Bemis: Yes.

Mr. Barbour: In each of those cases the base was very much higher than anything you had advised, was it not?

Dr. Bemis: I don't know that it was very much higher. In some cases it was higher. In this consolidated case they put in this special franchise that I spoke of.

Mr. Barbour: I will ask you there if you did not in the Baltimore case make a valuation of about $15,000,000 and the Commission fixed a valuation of $26,000,000?

Dr. Bemis: I do not recall. I know they fixed it higher.

Mr. Barbour: In that case (The Consolidated Gas case) you advised 73 cents as the rate, did you not?

Dr. Bemis: Well, I don't remember, but it is quote possible. If you say I did I will accept that. I don't remember now.

It is admitted that this witness had previously stated that the rate established by the Commission was 80 cents.

683 In nearly all of these cases the rate had been already fixed and in a few cases I advised as to the rate. But in many cases the rate had already been fixed, and before I was called into the case, and I frequently have been of the opinion that it would sustain a lower rate even than had been fixed.

Mr. Barbour: Don't you know that that rate of 80 cents even has never produced as much as 4 per cent except in one year?

Dr. Bemis: No. I have read of such claims, but they never went to the Supreme Court to get a change in the rate, although they were put on trial for one year.

Mr. Barbour: In the Syracuse case you based your testimony there as to value on the relation, as you expressed it, of units of capacity to units of value, did you not?

Dr. Bemis: I do not recall, but it is quite possible. I often years ago used that method as the only short and practical method at hand

without a complete valuation. But it is only at best tentative; not entirely so. I don't rely on it, you will notice, at present. It is by no means accurate. It is still used. Engineers frequently take certain unit costs in mind, certain relations between capacity and cost, such as they do in regard to the cost of buildings per square foot of floor space.

Mr. Barbour: In that same case you had another theory, did you not Doctor, of estimating or valuing the plant structurally according to the sale of gas,—so much per thousand feet of annual sales?

Dr. Bemis: That is often done still.

Mr. Barbour: When did you abandon these theories of units of production and units of value?

Dr. Bemis: As far as I could get the funds for a more complete investigation I insisted on having it made. It has been some years now I think since I put much reliance upon such things.

Mr. Barbour: In the Baltimore Gas Company case you fixed the value of this company and franchises at $18,568,200, did you not?

Dr. Bemis: I don't know. Is that the first case you are asking about? I don't recall the figure at all, now.

Mr. Barbour: You included franchises in the valuation you arrived at there, did you not?

Dr. Bemis: Yes.

Mr. Barbour: And five years later when the question came up of fixing rates, you valued identically the same property, with additions made in the meantime, at only $8,604,000, did you not?

Dr. Bemis: I don't recall the figures, but the difference is because the first value was fixed for tax purposes on the basis of earnings at existing rates. There was no commission to regulate rates; there was no expectation of a commission. It was supposed their rates were going to continue indefinitely and their profits continue to grow rapidly.

I think I testified in that case (I did in the second case, and I think in the first one) that this was a tax to continue only while the earnings continued at that rate, and it would fall
684 with the fall of the earnings, if the rates were ever regulated.

I made it in the second gas case. Whether I made it in the first, I don't know. But in the first I based it all on earnings, and I made that clear because I was cross-examined on that point in both cases.

Mr. Barbour: I have a copy of the second gas company case here, and I will be very glad to have you point it out.

Dr. Bemis: In the second gas company case I was cross-examined as to why there was that difference in values.

Mr. Barbour: I do not say it is not there, but I have read it with care, and I have not been able to see such a statement. If you can point it out to me I will be very much obliged. The record is here at your disposal.

Dr. Bemis: I recollect now making such a statement. I will take that volume to the hotel with me tonight and look it over, if you like.

Mr. Barbour: All right, sir. The basis on which you went there

was, that the way to find the valuation was five per cent—that is, twenty times its earning capacity, is it not?

Dr. Bemis: In the first case, which was a tax case, with the rates of interest then prevailing, and the rate at which securities were selling in the market, I held that such a utility with such permanency of growth, would probably sell at twenty times its net earnings after deducting for depreciation and taxes.

Mr. Barbour: I would be glad if you would explain how you can justify a valuation at one time of $18,500,000, and five years later identically the same property, with additions in the meantime, valued at $8,600,000, in round numbers?

Dr. Bemis: Suppose I make up an illustration as I go along, because I have not the figures of that one in mind.

Suppose you have property representing an investment of $10,000,000, and suppose six per cent to be taken as a fair return after paying depreciation charges, taxes and so forth. There would be $600,000. Suppose that property were earning, after paying all these charges, $1,200,000. Suppose it were found to be true that the bonds of that company at five or five and a quarter per cent. were selling at par, and the stock at six and a half or seven per cent was selling at par, it might well be true that the property would sell for $20,000,000, six per cent of which would be $1,200,000.

Now, as long as it was allowed to earn an income of $1,200,000, it should be taxed, I say, on $20,000,000, which I call its value de facto. And from my point of view if it is a public utility that has no special franchise to give a fixed rate of fare like a street railway for a term of years, if we take six per cent as a fair return then $600,000 would be a fair return and $10,000,000 a fair value probably. And as soon as the rates were reduced to $600,000 and the property fell to $10,000,000 the taxes likewise would fall. But until that occurred, and while the property was worth $20,000,000, it should be taxed at $20,000,000.

A tax does not legalize the value. It is simply a public burden upon a value as long as it exists. The state in taxing a value does not legalize it.

685 Mr. Barbour: But from the standpoint of public policy as well as from the standpoint of morality, how would you justify any such legerdemain as that? Here are the holders of a piece of property which you see here on the market, and you are judging what it will sell for, and you are invited to sell it and pay money for it. On the basis that you value this property at $18,000,000——

Dr. Bemis: We are using $20,000,000 in the illustration I gave.

Mr. Barbour: Or $20,000,000, whatever figure you choose—those stocks and bonds are on the market for sale to be dealt in by the public on the faith of the very thing that you as a public official have valued it at, and they buy it and sell it at those figures and upon that basis of figures, and five years afterward you, the very same man, sworn to value truly in both cases, come back and say its value is $8,000,000 and not $20,000,000—and those people who

have bought it on the faith of your first valuation, their money is gone up in smoke.

How do you justify that on the grounds of morality and public policy?

Dr. Bemis: I did not assume the $20,000,000 that I assumed *of* be the selling price of the property at the time of the tax, was a value due to the tax or due to the assessment, but that the assessment was due to the value, and that the value was there owing to the earnings. I also assume that those earnings always were subject to regulation. If the owners of those securities were taking a gamble on the state not utilizing its rights, then the excess value of the securities was the market value of the State's supposed weakness of regulation.

You are assuming that the state created this value of $20,000,000 and validated it in some way. I do not assume anything of that kind. I assume that the utility existed under the principles of the common law and rights of regulation, and that as I understand those principles they are that the investment is controlling.

Commissioner Newman: Doctor, would it be possible to justify that on the theory that there are two methods by which the community may take back to itself excessive profits of a public service corporation, one by taxation and the other by a reduction of rates?

Dr. Bemis: It has the right to do either.

Commissioner Newman: Would that justify those two valuations?

Mr. Barbour: Is it good morals, Doctor, to invite the investing public to invest its money in these securities upon one valuation ascertained in accordance with law, on which they are taxed, because they are worth that much on the stock markets, and then the next year wipe out all of that valuation, all the basis of valuation, upon the theory that the public is now taking back, as expressed by the Commissioner, the excess rate that has been charged prior thereto?

Mr. Syme: I submit that this witness is not called upon to answer any such question as that.

Mr. Barbour: I asked him whether he regards it as good morals.

686 Dr. Bemis: I am willing to try and answer it.

Commissioner Newman: Personally, I would like to hear it. As a matter of fact I would like to answer it, but in view of the fact I cannot, I would like to hear the Doctor do it.

Dr. Bemis: I believe that the case is not so clear and sharply drawn as you present it. There has been no sudden development of this idea of these utilities being under an obligation to furnish service at a reasonable return on a fair valuation, and that that may be far less than the securities are selling for. But the doctrine has been preached and has been widely discussed for the last twenty-five years. It is no new thing in the world. It is like changes in taxation laws; they are made; people expect them to come. I do not see why any failure of the state in the past to exercise its right to regulate gives the present so-called innocent investor any more rights than the innocent consumer. He is just as innocent as the investor. It seems to me that the imposition of an assessment on a

property is no more a state validation of its value than is the assessment of an income tax any assurance that the government thinks your income ought to be what it is or that it will continue to be.

It seems to me that in assessments they take just what they find. They may change the assessment, and often do change it very radically from year to year or from decade to decade. I recognize that if all this thing came suddenly, if we had heard nothing about it at all, and all values had been gradually growing on the basis of no regulation, it would seem a little hard to apply everything all of a sudden.

But as I say this thing has been coming on for many many years; and I believe that the public has rights in this that should be protected, and that while the values continue it is proper to tax them, but that does not validate them. Only I do believe that when there has been an actual investment gone into the property there will be no desire to take that away. It is only values based simply on earnings over and above that that we are talking about today in the difference between this ten and twenty million dollars.

Mr. Barbour: Doctor, you speak about the conflict of interest between the innocent investor on one side and the innocent consumer on the other. If our theory of government is correct the innocent consumer is a participant in everything his government does, is he not?

Dr. Bemis: Certainly.

Mr. Barbour: Then how can he occupy that position of being an innocent consumer when the government, his representative, speaking for him, has fixed these standards of value on which the innocent investor has acted? How do you justify that, on sound morals or sound public policy, either?

Dr. Bemis: The failure or neglect of the government to protect the people that it is supposed to care for in one generation does not give exemption to the favored to continue their privileges in the next. The fact that a cotton mill is allowed to become very profitable through child labor, as it might in some instances, and through the failure of legislation to properly control it, does not give that cotton mill any right of complaint if later child labor is prohibited.

Mr. Barbour: Doctor, there has been in the concrete case we are discussing here no lapse of a generation between the valuation of
\$18,000,000 at one time, and five years later a valuation of
687 \$8,000,000. Both valuations were made for the interests as you saw it at the time, of what you speak of as the innocent consumer. That was the whole root and branch of it, was it not—you were trying to make the company pay as much tax as you could, and when it came to the rate end of it, you were trying to make them collect as little rate as you could? Is not that the explanation of the whole theory?

Dr. Bemis: I think you should modify that in this way: Any tax a utility must pay is properly charged to its operating expenses, and when it was paying this tax, which might be due to a high valuation, it can include it in operating expenses in the rates, and to that extent it is protected in the high tax.

But I do not see and I do not understand how any student of taxation can hold that an assessment for purposes of taxation is anything more than a recognition for the year only of the tax, of the value that is now there. It gives no guarantee of what the value will be the next year. The man who owns that property has no right of suit against the state of his property becomes far less valuable the next year, has no protection whatever. His tax ought to fall, to be sure, if his property becomes less valuable. We all agree on that.

But I cannot see, and I have studied taxation—that is one of the things I had to study for years, and taught it—and I cannot see a particle of connection between taxation, which as I hold is the values—I never heard anybody else use the term; I have simply coined it in this way of using it—that taxation is the values de facto; rates are the values de jure.

Mr. Barbour: Doctor, that sounds very euphonious, and might do for a theorist, but for a man who had his money invested in these properties, how would you justify the two propositions before him—a tax on your property for the purpose of paying a contribution to the support of the government is one thing, but as a basis of value for my getting money to pay that very thing, it is another thing.

Commissioner Newman: It would not be two different things simultaneously, would it?

Dr. Bemis: No. I think I made it clear that the rate of tax imposed must be sufficient to permit its collection.

Mr. Barbour: At that rate?

Dr. Bemis: Yes.

Mr. Barbour: When that property was taxed at that rate it was proper to allow rates on that valuation.

Dr. Bemis: It was proper to allow in operating expenses that tax.

Mr. Barbour: And that is as far as you will go in the matter. It was not value there.

Dr. Bemis: No.

Mr. Barbour: And it was not fair value, although the statutes require you to access property at a fair value.

Dr. Bemis: I think the term is used in that connection rather with reference to its selling power—just as I think the courts have used fair value in a very different sense when they are talking of rates.

688 Mr. Barbour: You have spoken of fair value. Can you suggest any court decision which has put the construction upon fair value or the distinction between value and fair value that you have sought to put on it here.

Dr. Bemis: You will find many of those.

Mr. Barbour: Just one, not many—just one will do for my purposes at present.

Dr. Bemis: There is a California decision, I think by the California Supreme Court. I cannot quote it offhand.

Mr. Barbour: Can you tell me what volume it is reported in?

Dr. Bemis: No, I could not tell you. I quoted it in a paper before——

Mr. Barbour: Can you refresh your memory between now and Monday morning, and let us have a reference to it then?

Dr. Bemis: I doubt if I can, because I have not my paper here with me?

Mr. Barbour: Can you give me some other case; you said many?

Dr. Bemis: I will look it up and see.

Mr. Barbour: Did the Maryland Commission adopt your view in the second case, the Consolidated Gas case?

Dr. Bemis: They made a reduction in the price, but not as great a reduction as I felt they should make.

Mr. Barbour: Did they make a reduction in values?

Dr. Bemis: I don't recall. They did not come down to the point that I advised, but they did accept the company's valuation. There has been quite a considerable reduction in Baltimore in the last year in gas.

Mr. Barbour: They exceeded your valuation amount 35 per cent, did they not?

Dr. Bemis: I don't recall, but I know they held this particular law had some effect on their decision.

Admitted that in the Des Moines Gas case the Master said, speaking of his (Bemis) estimate of the value of the property is $1,600,000 but made without investigating the plant, but rather from the evidence in this case: "In my judgment, he is not a competent witness thereon and hence, not considered upon that question."

In that case the *a* rate of 90¢ was fixed. He testified for a rate of 85¢. The rate allowed by the Master was 90¢. It had already been fixed at 90¢ and he was showing them they could afford to sell it at 85.

Mr. Barbour: The rate allowed by the Master was 90 cents?

Dr. Bemis: Yes, he sustained the rate fixed by the city, and it was confirmed later by the United States Supreme Court.

689 Dr. Bemis: * * * I have found the reference in the volume of testimony which Mr. Barbour has loaned me for the purpose, and I would like to give the reference.

On page- 1467 and 1468 of the testimony I stated this:

"For purposes of taxation the value is the value de facto; in this case it is the value de jure. We tax the existing value whether it is right or wrong."

They are the only instances in that case, which is all I was asked to refer to, that I have looked over. I have not read all that is on those pages that amplifies those points, but having found those two references, I did not look further.

Mr. Barbour: I will read you the question that I asked you, and I will ask you if you think you have responded to it. This is on page 2733. You made this statement:

"I think I testified in that case (I did in the second case, and I think in the first one) that this was a tax to continue only while

the earnings continued at that rate, and it would fall with the fall of the earnings, if the rates were ever regulated."

"Mr. Barbour: Can you point anywhere in the record where you made that statement?"

That is what I challenged you to produce, not an attempted justification of what everybody usually had done.

Mr. Barbour: In the Public Utility Act of Maryland it is expressly provided that the value of a franchise should not be capitalized, in the very law under which this valuation was made. Don't you know that?

Dr. Bemis: I know that is in nearly every law. I probably knew it at the time. I don't recall at the moment.

Mr. Barbour: Yet this very commission set this easement at a value of five million dollars, did they not?

Dr. Bemis: Yes. I think there was a special law, however, regarding easements, that does not exist in other states.

Mr. Barbour: Is there anything in the District law that you know of forbidding the capitalization of franchises?

Dr. Bemis: I don't recall now. Most every commission law does have something of that kind.

Mr. Barbour: On the contrary, I will ask you if this law does not recognize impliedly at least, the right to sell franchises and to have them valued? Does it not direct you to ascertain "by whom the indebtedness is held, so far as ascertainable the amount purporting to be due thereon, the floating indebtedness of the public utility, the credits due the public utility, other property on hand belonging to it, the judicial or other sales of said public utility, its property or franchises and the amounts purporting to have been paid, and in what manner paid, and the taxes paid thereon?"

Dr. Bemis: Yes, but you notice paragraph 6 is not the paragraph that authorizes the valuation.

Mr. Barbour: But it is the paragraph that directs what the Commission shall ascertain preliminary to fixing the valuation.

Dr. Bemis: No; preliminary to anything they want in addition to that. They do anything they please under 7.

Mr. Barbour: You think it has nothing to do with the ascertainment of fair value?

690 Dr. Bemis: Nothing at all with reference to 6, but however the Commission chooses to use it.

Mr. Barbour: Did you purposely disregard this provision in paragraph 6 in this valuation and inquiry you were directed to make?

Dr. Bemis: Practically. Most everything there I had included, but not because it was in 6. I included some things perhaps not in 6 for the same reason.

* * * The reproduction cost, with all its large overheads, is losing ground, in my opinion, and valuations made five years hence may give more attention to the actual cost than now, just as valuation now would be as compared with five years ago. I believe we are getting more and more down to a just value, but we have not reached it yet fully. I think values made now are there-

fore a poor basis for a sliding scale, and I think, five, ten or fifteen years hence people will rue the day they made them.

The foundation of his objection is not that it puts a premium on efficiency. He thinks that investors or the stockholders of a company of this kind should have an inducement offered to them to increase and insist on efficiency from their operating officials or to keep down expenses, but without the sliding scale that can be done by a larger rate of return on a company recognized as efficiently managed than on a company inefficiently managed.

I believe the same flexibility in the rate of return can be allowed by a commission without resort to a sliding scale, which ties the thing up too much.

Mr. Barbour: I believe you testified that in this Boston case you were employed by the Hearst papers.

Dr. Bemis: Half of my services and expenses were paid for by the Boston American and half by the city of Boston. They jointly divided equally.

He cannot recall whether at the time he advocated the 70¢ rate in Boston that he testified that under the conditions then existing it was costing 80.8¢ per thousand to manufacture it. "It is quite possible."

He does not always go under the rate proposed by everybody else.

Asked the question if, when he was testifying in favor of a 70¢ rate in Boston he did not on that occasion and in response to a question by Mr. Moss admit that it would cost at that time 80.8¢ to manufacture gas in Boston, he stated he could not recall but that he certainly did not testify that the price should be below par. There were at that time quite a number of companies just consolidated, and some of them had very extensive costs owing to the fact that they had been operated entirely independently until just before.

Referring to his testimony in Philadelphia, he testified as follows: 'Had you not two years before, in testimony given in Philadelphia on a hearing, advocated an 80-cent rate, and in testifying in Boston you advocated the 70-cent rate, and then when asked about it you said that you had found that you had been mistaken in your Philadelphia estimate, and that you had learned a good deal about gas since then?'—"Possibly. I hope I have learned more since, in the last twelve, thirteen or fourteen years.

Mr. Barbour: The more you learn the cheaper you get, though.

691 Dr. Bemis: Well, I think Cato's motto was good: "To grow old, always learning something new."

Mr. Barbour: On page 2380 you testified, I believe, Doctor, that you were on the advisory board of the Interstate Commerce Commission, advising with regard to methods of valuation. You are responsible, are you not, for the methods of accounting being pursued in that investigation?

Dr. Bemis: To some extent. I have been asked by Judge Prouty to have considerable oversight of that work. I helped to shape the

work as it was organized three years ago and have had some oversight of it since.

Mr. Barbour: Has not Judge Prouty stated that this work under your supervision was practically worthless?

Dr. Bemis: No.

Mr. Barbour: And whatever work you have done there was done under his authority?

Dr. Bemis: Yes.

Mr. Barbour: He was the man that you were to report the result of your work to, and work done in accordance with your method?

Dr. Bemis: Yes, and to the valuation committee of the Interstate Commerce Commission. Sometimes reported to them direct.

Mr. Barbour: Do you know what he said about that work and the methods pursued?

Dr. Bemis: I think I have heard and read several of his statements and often have talked with him and had conversations with him frequently even within the last few months and am still working in harmony with his plans.

Mr. Barbour: Doctor, I will ask you, referring to this matter, if Judge Prouty, your immediate superior, did not make publicly the following statement:

"Now, in addition to that—and here has been the trouble—the statute requires us to show original cost to date with respect to each item of property. None of us knew exactly what this meant, and no one appeared to have any very distinct notion of what could in fact be done toward compliance with this requirement of the act. A railroad had already been selected by our engineers in each district for valuation, and it was finally determined to put our accountants at work upon the books of the same company in each district, with instructions to bring back whatever information was available as to original cost to date. The work had not proceeded far along these lines before I became convinced that we were attempting the impossible and squandering considerable money in the attempt. Instructions were accordingly given to discontinue for the most part that branch of the work upon all roads except two. In the western district of the Texas Midland, 112 miles long, and in the central district of the New Orleans, Texas & Mexico, 175 miles in length, had been selected for initial valuation, and it was determined to carry through to a completion the accounting work as begun upon these two railroads.

692 "Until very recently I had never seen the definition of the California Commission of original cost to date, but I had, rather against my own first impression, reached a conclusion exactly in accordance with that definition as I now understand it. If we could go back to the beginning and could rewrite the books of account of a railroad company, according to the rules of the Interstate Commerce Commission, the property account, the Investment account, as shown by that operation, would be, I think, original cost to date, and that was precisely what was attempted in the case of those two railroads. We went back to the beginning, and we endeavored to rewrite the accounts of those companies for the pur-

pose of showing what a correct investment account would be to date; to take out of that account everything which had improperly gone into it, and put into that account everything whiel had been improperly left out.

"In addition to that we endeavored to distribute the investment account among the primary accounts so as to show how much had been paid for rails, how much for ties, and so forth. Still further, we endeavored to distribute the investment account among the items of property which are now in existence, so that when the inventory was made up we could state with respect to each item what that item had cost.

"Now you will readily understand that that is a tremendous undertaking as applied to all of the railroads of this country. It is a tremendous undertaking with respect to a little railroad like the Texas Midland even. You must handle every voucher. You must examine it, analyze it and assign it.

"That was done, with the conclusion that when the investment account had been thus re-written it was good for nothing. In the first place, it is absolutely impossible today, as the books of account of our railroads have been kept, to correct errors which may have been made in the original distribution of those items. Take a voucher for a payroll or a voucher for supplies. You cannot determine whether the labor and material were used for a betterment to that property, or for a renewal which should properly be charged to operation.

"But worse than that, there is no way in which you can tell what retirement has been made, and what amount should therefore be taken out of that investment account. So that it came to be felt that the investment account when rewritten was not much better than it was before. It is my own feeling that if we were to treat the books of every carrier in this country in that way, while many instances of mistake would be detected, the general result would add very little to the knowledge which we now have, and it might be a source of misformation rather than of more accurate information.

"If the investment account is to be rewritten, it can be distributed between the primary accounts without very much additional labor, and it would be interesting and perhaps profitable to do this.

"The third thing which we tried to do was to distribute these items of expense between the different items of property now in existence, and we found that with respect to certain things that could be done, and with respect to certain things it could not be done at all. As to the roadway and the tracks and everything of that sort, it was found impossible to locate the place where the expenditures had been made. With structures it was somewhat different. We could say that a certain amount of the expenses had gone to bridges, for example, and, within certain limits, that a certain expenditure had been made upon a particular bridge. For instance, $100,000 had been expended in one year on bridges. Now, we could locate the particular bridges to the amount of $75,000 out of the $100,000, but there was still left $25,000 which could not be located. Not only that; it was found impossible to tell

693 whether the amount which had been expended upon a particular bridge completed that bridge. The books showed that $10,000 had been expended at different times upon a given bridge, but they did not show whether some expenditures for labor or material had also gone into it.

"The question immediately arises—what use can be made of this information. Our accounting work has been under the immediate charge of Dr. Bemis, and it is I believe his opinion that we ought in some way to use these figures in connection with further estimates. It is the duty of the Commission under this act to show original cost to date. If this be obtainable from the books, show it in that way. If the entire cost cannot be ascertained from the books then show what the books do disclose from that source and estimate the balance. But if you take one of these bridges as an illustration, you do not know what the balance is. You do not know what should go into the estimate. You do not know what part of the structure has been paid for by the $10,000 which has gone into it, and it is therefore impossible to place an estimate upon the remainder. My own conviction is that the greater part of our original cost to date — work upon the Texas Midland was in fact thrown away."

I want to separate the statements of fact contained in that statement and the conclusions or opinions. I want to ask you if the statements of fact contained in there as coming from Judge Prouty are true?

Doctor, I asked you if the statements of fact contained in that are correct, that is, the statements of Judge Prouty?

Dr. Bemis: It is impossible to give a fair answer in the terms of yes or no. I can merely say I think Judge Prouty believed every word when he said it. I know he did modify his conclusions.

Mr. Barbour: I am asking you if the facts as stated by Judge Prouty in there are true.

Dr. Bemis: Very largely true at present, and probably completely true at that time as regards those roads. Some additional data has lately been discovered. Some $52,000,000 that were supposed to have been lost were found within two months by the Texas Commission and are today being tabulated and set up, including the division of the Interstate Commerce Commission, to use in coming hearings.

The facts as to those two roads were substantially true, but not completely at the time they were made, though it was not true they were worthless.

Mr. Barbour: Doctor, I am going to come to it now. Do you agree with the conclusions stated by Judge Prouty on these facts?

Dr. Bemis: Not fully. Where there are no records of a portion of the property, or the records are very defective of a portion of the property, I believe, as, say, a part of a building, if a very material part of the records are missing, I do not believe the records of what we did have are very valuable, and we are not trying to get them. We discontinued that after the experimental stage. In connection with these first roads it was intended to be purely experimental, and was adopted with the endorsement both of Judge Prouty and Prof.

Henry C. Adams to see what the results would be. But wherever we are convinced that there is anything like a complete cost possible from the books we seek it.

Mr. Barbour: Isn't that the very thing that Judge Prouty complains of, that you cannot get a complete record from the books, and that an accountant now with imperfect knowledge as to the real facts cannot improve on the books as originally written
694 by people who were familiar with all of the facts?

Dr. Bemis: We find we can get the data on a great many roads; for example, the Winston and Salem, the Kansas City Southern, the Chicago, Joliet & Eastern, and many other roads where we have been working on them and where we have been getting it. On other roads the conditions are as bad and he portrayed them on the Texas Midland.

Mr. Barbour: He did not confine his criticism to the Texas Midland. He just took that as a typical case, did he not, Doctor?

Dr. Bemis: It was a typical case of the roads that we then were studying. The engineers selected five roads to start with, four of which I think were in the hands of receivers, all of which were small roads in the South built many years ago. They selected those because they were easy roads to practice on in order to get up their muscle.

Mr. Barbour: I will ask you if you did not also select them, doctor, because their records were supposed to be fairly complete?

Dr. Bemis: If they were selected for that purpose I don't know that that enters into it. The accountants had nothing to do with the selection of the road. That work was done by the engineers months before I had anything to do with the work. * * *

Witness admitted that he had no personal knowledge of the records of the Potomac Power Company and has not examined them nor any vouchers and that he does not know whether they are perfect or imperfect.

The experience of the witness in Cleveland and New York as Deputy Water Commissioner were the only practical experiences that he ever had with any organization of any kind or character actually engaging in the management of them or the engineering work directly.

He could not recall whether or not in the Lake Forest case he had testified that he was not an engineer.

He does not know that he testified in that case that he did not claim to be an engineer; that he might not have claimed to be an engineer at that time, but as he studied the work done there and compared it with other engineering work, he considers he was doing engineering work in Cleveland.

He does not recall that he stated he was in charge of the engineering work on this valuation. He had supervision *of* both the engineering and accounting here, but he was not here continuously as he was for the five years in Cleveland.

Mr. Barbour: In the case of the Lake Forest Water Company against the City of Lake Forest, Illinois, before the Public Utilities

Commission on Saturday, October 3, 1914, did you not make this statement:

"Then in the District I claim the work is a direct appraisal of all public utilities except water, such as gas, electric lights, telephone and street railways. I am the engineer in charge of strict engineering work, and Mr. Sangster, who has been here, is in charge of the accounting work?"

Dr. Bemis: I did not think I would state that. That was not precisely accurate.

Mr. Barbour: Would you say you did not make it?

Dr. Bemis: I don't remember. If you have it there it must be that I said so, but it was a mistake. I was in charge of both lines of work equally, both Mr. Sangster's and Mr. Pillsbury's, and there should not have been any distinction between the two.

Mr. Barbour: Didn't you say then:

695 "I have to make a report on the estimated cost or the actual cost as near as we can get it on the -stimated replacement cost and estimated depreciation?"

Dr. Bemis: I believe I stated that. I consider that to be true.

Mr. Barbour: Did you not further state:

"I am supposed to advise the Commission of such additions of these and other factors that should be considered in fixing a valuation for the purpose of rate-making and possibly for purchase, because there is a bill before Congress that has already been reported out of the committee for the purchase of the street railways by the District, and ultimately there will be some reports upon these changes, if any may be made, in rates as the result of the appraisal."

Dr. Bemis: I believe I said that, and I would not change that now.

Mr. Barbour: You still adhere to that?

Dr. Bemis: Yes, sir.

Mr. Barbour: I have correctly quoted your testimony, then?

Dr. Bemis: I assume so all except it seems a little strange I should have said what I am reported as having said as to the distinction between my relations between Mr. Sangster and Mr. Pillsbury, because they were the same.

Mr. Barbour: Did you in that case refer to Mr. Pillsbury as being in charge of the engineering work here?

Dr. Bemis: I don't recall, but Mr. Pillsbury was not testifying in the Lake Forest case at all, and Mr. Sangster was, and I was referring to Mr. Sangster's work more because of that fact than I was to Mr. Pillsbury, probably. There were others that did engineering work in the Lake Forest case.

Mr. Barbour: Didn't you state this:

"I have two engineers, and Mr. Sangster helped me there with some 60 or more men."

Dr. Bemis: Two engineers.

Mr. Barbour: Pardon me. I lost the context there. That was in reference to the Detroit Street Railway work. That last question I asked you referred to Detroit. It was in regard to that that you said, "I had two engineers, and Mr. Sangster helped me there, and

there were some 60 or more men, as in Washington, working on that line"?

Dr. Bemis: I think I made some such statement. That was the fact.

Mr. Barbour: Why did you say you were the engineer in charge?

Dr. Bemis: I consider I was the engineer in charge of the whole thing. I consider I am a consulting engineer.

Mr. Barbour: Have you made any report on the engineering features of this work, doctor?

Dr. Bemis: I am preparing a report embodying my testimony upon the work we did for my testimony in which the comparisons are made.

But he has made no report to this Commission. He relied on Mr. Pillsbury's data the same and no more and no less than that of Mr. Sangster.

He relies on the engineering and accounting work and applied it after these preliminary chapters were made, the engineering and accounting work being relied on as preliminary sub-structures.

696 Mr. Barbour: You are simply or merely applying your theories to their work, are you not?

Dr. Bemis: In addition to that I suppose I have something to do with directing their employment. I recommended them, and I had something to do with the lines of activity they were to take up, but they were left entirely free to follow their best judgment in those lines. I suppose I ought to put it stronger. I directly nominated both Mr. Sangster and Mr. Pillsbury for the work.

That he had been removed from the board of supervising engineers of Chicago by the Mayor upon the ground that he was not an engineer. He received $100 per day for the time he put in on that work. That the Mayor in his letter of removal wrote him as follows:

"A recent perusal of the traction ordinance under which the Chicago surface lines are operating has convinced me that it was the plain intention to have all the members of our supervising engineers men who can qualify as engineers. I feel convinced, from a study of the subject, that the city's representative on the board of supervising engineers, to be fitter properly to represent its interest should be either a graduate engineer, or, at the very best, on who has had long practical experience in one or more of the branches of engineering. I find you do not fulfill either of these qualifications, and have arrived at the conclusion that you should be replaced by an appointee meeting the requirements of the ordinance."

The compensation of Dr. Bemis here was $100 per day with the provision that he should devote only such days per month to the work that his proper supervision and his own personal investigations require, the total number of days per year not to exceed seventy-five, unless specifically required by the Commission.

The contract was signed by Dr. Bemis, Chester Harding, F. I. Siddons, O. P. Newman.

Mr. Barbour: In reference to the basis of the valuation of the real estate, doctor, did you fix the basis that was adopted as reported by Mr. Pillsbury?

Dr. Bemis: I recommended that the basis of the value of adjoining land should be taken without multiples, etc. I did not make any definite determination as to whether certain overheads should be allowed or not, but I finally decided that they might be put in, although later I thought they should be taken out on my interpretation of the Minnesota Rate case decision.

They were not eliminated from Mr. Pillsbury's report, but I eliminated them in my testimony. The effect of the Minnesota Rate case was quite important in my judgment as affecting my views. A similar policy has been pursued as the result of that case in the Interstate Commerce Commission's valuations.

Mr. Barbour: Did you give directions that no attention was to be paid to the peculiar adaptability of the property for the purposes to which it was devoted?

Dr. Bemis: It was to be valued simply as so much land in the neighborhood similarly situated as near as possible would be considered worth. My recollection is that I did not favor a special allowance, but for a certain site at a special value for any manufacturing purpose, for example, such as nearness to water or anything of that kind. That value would be considered, but special value such as street railway or electric light rather than gas or manufacturing plants I did not emphasize.

Mr. Barbour: If consideration was not given to those elements, then, your instructions have been departed from?

Dr. Bemis: I do not recall just what I said in regard to that.

Mr. Barbour: Doctor, that is not a reply to my question. I asked you if consideration has not been given to and allowances made for it have your directions been departed from?

Dr. Bemis: No. I don't think consideration should be given to those elements, but I do not recall directly what I said about it. I think I suggested they should be ignored.

Anyway, that is my view. It is largely based on the ground of the Minnesota Rate case, which is the value of adjoining land, and that is said to be the maximum. If they get as much as that, a utility has no ground of complaint. I do not think they should get as much as that. I think the cost of the land should be the outside element of the land as well as all the rest of the property, but I think in view of the present attitude of the courts the value of the adjoining land without any overheads whatever on it may be conceded to accompany, and in most of my recommendations of late I have included that.

Mr. Barbour: Doctor, you stated you did not construe this paragraph 6 as in any way affecting your employment and duties under this employment. I understood you in your examination in chief, with this book before you, to read paragraph 6 at length.

His testimony being read to him as stated on pages 2836—He was asked—

When did you come to the conclusion that that law did concern the work that you were employed to do?

Dr. Bemis: I have not answered that question as to when.

Mr. Barbour: You came to the conclusion that this paragraph 6—the Chairman states that the Commission also construed it as not being concerned in your employment. I ask you now when you came to the conclusion that that law did concern itself with your work?

Chairman Kutz: I wonder whether counsel did not get the
698 wrong impression from my statement. What the Commission had in mind was this, that all the duties imposed by paragraph 6 upon the Commission were not entrusted to the valuation bureau, of which Doctor Bemis was the head.

Mr. Barbour: When did you come to the conclusion—I will try to use your language—that the law that appeared to concern itself with this work—I say when did you come to the conclusion that that law did appear to concern itself with this work? You have stated a little earlier that you did not think it had anything to do with it.

Dr. Bemis: I made that clear, I think, at the bottom of page 2838, where I said:

"That paragraph called for two classes of information as it seemed to me, information that would be helpful in determining a fair value of the property, and other information which did not have much bearing on it." I was very much influenced by the fact that the act was passed the same day as the act for the valuation of railroads that specifically covered the whole subject in a much clearer way, and I was very much affected by that Interstate Commerce Commission valuation act.

Mr. Barbour: Did not the Interstate Commerce Commission act cover these very same things in a much more detailed way and give much more detailed information than this calls for?

Dr. Bemis: Yes, and it omitted some things that I think are there.

Mr. Barbour: Do you mean to say this valuation you referred to by the Interstate Commerce Commission was intended to be made the basis of purchase?

Dr. Bemis: No one finds any data as to what is the motive.

Mr. Barbour: You have stated that there is nothing in the Interstate Commerce Commission law showing the ultimate purpose, and that it may be used for purchases by the government or for the issuance of securities as well as used in rate cases.

Dr. Bemis: I stated that, yes.

Mr. Barbour: I will ask you if the law itself does not specifically prescribe what use shall be made of this information?

Dr. Bemis: I have never discovered it, and I have never met anybody who has.

Mr. Barbour: I will read you this and ask you if you do not think it does:

"All final valuations to be published, and shall be prima facie evidence of the value of the properties and of proceedings under the act to regulate commerce as of the date of the fixing thereof and in all

judicial proceedings for the enforcement of the act brought to enjoin, set aside or suspend any order of the Interstate Commerce Commission."

Isn't that the specific purpose and what use shall be made of this information when ascertained, and that is that it shall only be prima facie.

Dr. Bemis: It does not restrict the rights of the Commission to use it for any purpose for which the Commission has authority. It does not have authority for anything over rates, but for any authority to regulate securities, or any serious proposition, I think this valuation would be used.

Mr. Barbour: It would require an amendment of Congress to do that?

Dr. Bemis: Yes, and bills are in Congress to do that now.

699 Mr. Barbour: Why then, Doctor, should you depart from Paragraph 6, which was adopted not only at the same session but at the very same moment and a part of the very same law? Why should you go away from Paragraph 6, which was the very law under which you are acting, and go to seek some other law adopted for a different purpose and applying to a different subject matter?

Dr. Bemis: Paragraph 6 I tried to follow in so far as it was applicable to Paragraph 7 on ascertaining the fair value. I omitted some parts of six which did not seem to apply to 7. I also felt free to take into account every element that would enter into 7 whether it was in 6 or not.

Mr. Barbour: Assuming that those two paragraphs are in pari materia, and were intended so to be by the Legislature, you have set your judgment above that of the legislative branch, then, have you not?

Dr. Bemis: Under those suppositions I would say yes. However, these reports were in some time ago, and I had no intimation from the Commission, which carefully examined them, that I had not covered all that I was expected to cover.

Mr. Barbour: What I wanted to know was whether you failed to cover them by direction of the Commission or whether you failed to cover them because you did not think that they were contemplated by the law under which you were employed.

Dr. Bemis: It was the latter.

700 Pillsbury's Instructions.

Mr. Barbour: The engineer, however, by your direction, was directed to confine that inquiry to property within the District used or useful to the business within the District, was he not?

Dr. Bemis: Yes, on the presentation of fact that the Commission had no jurisdiction outside of the District.

Mr. Barbour: You did not, then, undertake to have your engineer ascertain all of the property?

Dr. Bemis: Only all within the District; but I did have a hasty study made afterwards, as will be remembered in my direct exami-

nation, of the other property, by Mr. Kappeyne, but that was an afterthought.

I should say that if I interpreted Paragraph 6 as all coming within the direction of the Commission to me, then all the physical properties, including Graceland Cemetery and any property abandoned or not in use would have to be included, because that is all-embracing. But as I was considering primarily Paragraph 7, which spoke of the property to be valued as that actually used and useful for the convenience of the public, I did not feel bound by such parts of paragraphs that seemed to go beyond that.

The accountants in this case had not been directed to confine their findings to the property now in existence.

Mr. Barbour: If they have done that they have violated your directions?

Dr. Bemis: If I understand your question, I have not asked them to confine their studies to property now in use or now in existence.

Mr. Barbour: Don't you know that they have declined to extend their inquiries that way and have excluded from their consideration all property not now in existence?

Dr. Bemis: On the contrary they considered it and then excluded it. That is very different. They excluded it because it was not now in use, but they could not exclude it until they had first considered it. It was not included because it was not in existence.

Mr. Barbour: Have they not so stated, that they did exclude?

Dr. Bemis: If they have they have stated it differently from what I interpret it. I consider that paragraph 7, valuing the property actually used and useful at the fair value thereof at the time of said valuation, does not refer to property at its fair value in 1890.

Asked as to what date that refers to, he says: "At the date of the valuation which has been fixed at some period of time, and for convenience it was fixed at June 30, 1914, being about two months after the valuation was undertaken, and there has been no effort made to bring this valuation down to the present time though it has always been his belief that it might ultimately be done, but there has been no attempt made yet to do it, perhaps for lack of appropriation."

701 Great Falls Power Site.

(The Great Falls Power Site was excluded because, in the first place, it was not within the District, and it was not in use, and he left it an open question as to what should be done with it later.)

Mr. Barbour: You don't think, Doctor, that it was essential for the property to be within the limits of the District in order to be used or useful for the purposes of the company in its operations within the District, do you?

Dr. Bemis: I testified in my direct examination that it may be useful. It is not now useful, but it might be made useful, possibly. I do not deny the possibility of it. I claim to be ignorant as to that.

Mr. Barbour: Do you think that property must be in actual use

at the time of the inquiry in order to be used or useful in the business within the meaning of such a phrase?

Dr. Bemis: No.

Mr. Barbour: Have you made any study or inquiry to ascertain whether or not the property is serving a useful purpose to this company?

Dr. Bemis: No, except to learn that it had not been. At least I was informed it had never been developed; that there was no power generated there that was being sent away—transmitted.

Mr. Barbour: Do you not think, Doctor, that property which has been bought in advance of need and in anticipation of need should be so valued and included?

Dr. Bemis: Yes, I do, if it is reasonably likely to be needed, and I should value it at its cost.

Mr. Barbour: And you think the company would be entitled to a return thereon?

Dr. Bemis: It would. I should want to go back of the transaction of cost to see how much of it was a bona fide cost and how much of it was not.

Mr. Barbour: Some character of property has to be bought in much greater length of time in advance of need than other property, does it not?

Dr. Bemis: Yes.

Mr. Barbour: Then you have no knowledge at all as to the value of this property (Great Falls Power site)?

Dr. Bemis: No, I have no knowledge.

The witness had never traced the origin of the term "property used and useful" in this and similar laws and findings, and has never seen any statement about the origin of that.

Property which was once used but is no longer used for railway purposes is property which has ceased to be useful for railroad purposes, and it has got to be written off out of their earnings. They are entitled, then, to have that returned to them just as any other abandoned property. They are no longer entitled to consider that in their capital account.

Mr. Barbour: But it is to be written out of their income to be earned?

Dr. Bemis: No, very likely income that has been earned.

702 Mr. Barbour: Suppose they have not gotten the income to write it off; what would you do then?

Dr. Bemis: If they had not had the income, then it might remain in the suspension account, and they be allowed to earn it, possibly. I don't know how it will be decided.

Such cost must be taken out of past profits if there were past profits to take it out of. If not, it should legally remain, should justly remain. In other words, that is part of the depreciation for which the utility is entitled to charge the public. It is part of the current depreciation. Obsolescence is part of operating expenses always, whether the owners realize it or not.

Asked to justify his distinction between value and fair value, he said:

"In the San Diego Water Case in the Supreme Court of California, Volume 118 Cal., page 568, you will find this statement:

"Until the rates are fixed no one can say how much the property would sell for, and therefore that price cannot be ascertained as a basis for fixing those rates."

In other words, that means, changing the wording just a little, until the rates are fixed no one can tell the value of the property, and therefore the value cannot be ascertained as a basis for rates. That is what that means. But that is very different from their fair value.

Here is another in the Maine Public Utility Reports, 1915, Volume E, page 691, in the case of Clifford M. Tylor v. The Galt Block Warehouse Co., page 692, this is stated:

"To the extent that the business done is that of a public utility these charges must ultimately be determined largely by the value of the property employed. That must fix the charges rather than the charges fix the value."

That is the opposite view. You will find both of these views expressed in these decisions.

Asked to state the value of the property as distinguished from fair value, he said:

"I think I should take your net earnings and capitalize them at about six per cent. Value has nothing to do with ethics. Value is a fact, a fact is what the thing sells for on the stock market.

Value in my judgment is purely and solely what a thing will sell for. It has nothing to do with ethics, but it does depend mostly on the stock market. But it is a very difficult thing to determine it absolutely, because there may have been many quotations on the stock market in the last few weeks."

Mr. Barbour: What effect, Doctor, can the rate fixed by this Commission have on past value?

Dr. Bemis: I would not say any.

Mr. Barbour: But property bought ten years ago at its market value you would come in here now and value it not according to its then market value, not what it cost the property then, not what the investors had to pay for it, but you would fix its value by a rate that you would name today to be borne in futuro, would you not?

Dr. Bemis: The question is to be answered directly and frankly. The value of the securities bought ten years ago, the value today of securities bought ten years ago, which is probably what you are meaning, would be affected by a rate. No rate could be reduced materially without lowering the value of the securities. There are mild reductions, small reductions, sometimes, that are accompanied with such an increase of business that there is no change in the value of the securities; but usually a very material reduction in

rates will reduce securities and it will reduce securities of years ago; but it will be the present value that will be reduced, not the old value.

703 Mr. Barbour: When does a fair value become a value?

Dr. Bemis: When it has been recognized as a fair value and legally enacted and put into effect—the rates I mean—and the value recognized. You do not exactly have to tie a value absolutely to a fair value. It is quite often the case, for example, that the value fluctuates, somewhat from week to week, even on the same earnings. Value is a constantly fluctuatin- matter within certain limits even with the same rates and the same order of the Commission.

Mr. Barbour: Can you tell me, doctor, when value becomes fair value?

Dr. Bemis: When it conforms to an amount equal to what is a fair value, and what is a fair value is the matter under discussion.

When the value at which the property sells conforms to a value pronounced by the Commission as a fair value then in a general way you would say the value and fair value do become one.

Mr. Barbour: Doctor, as I understand it, the Commission, by fixing a rate, can fix value, I mean within reasonable limits?

Dr. Bemis: Within reasonable limits, yes, that is right.

Mr. Barbour: Is that value so fixed by the Commission a fair value or not?

Dr. Bemis: The Commission's determination of a fair value may, of course, be a mistaken one, but assuming that not to be considered for the present, the Commission's determination of a fair value we will assume is a fair value. Now, whether the actual value will conform to that or be greater or less wil- depend somewhat on other considerations, but it will be largely affected by two things, the fair value and the rate of return on the fair value, because the two must be taken into account.

Mr. Barbour: Does fair value ever equal value, then, in your opinion?

Dr. Bemis: It often may do so for a short period of time, but value is a constantly fluctuating matter. There may be convertible terms only for an instant at a time when they happen to be the same. Value is what is fluctuating; I do not consider that fair value fluctuates. Fair value increases with the increase of the investment and it is not that constantly vibrating, fluctuating thing with the demand and supply of money in the market. Fair value may be equal to the cost, using the word "cost" after taking out depreciation. Cost, in my opinion, means cost less depreciation.

Deterioration or depreciation means a mere lapse of useful life without deterioration of efficiency, but there are cases of equity where a utility has not earned enough to take care of depreciation where I would not write it off or include it in the fair value.

But in the same way if it has earned more than you would conceive of 20 years afterwards as a fair return as prescribed by the statute he would write it off because it earned more than a fair return.

He would amortize the capital to the extent that it represented depreciation.

704 Rate Prescribed by Law—Bemis.

Stockholders in a corporation are entitled to the benefit of a rate prescribed by law. They must take care of the depreciation if the property permits it.

Mr. Barbour: Under your theory, there is no such thing as a final determination of the fairness of any rate, is there?

Dr. Bemis: I should say that those were matters of constant determination as time goes on, only I have an idea that actual investment will always be considered sacred, and should be, I think, but you never can tell what the future generation will do, just as they may adopt the progressive inheritance tax. We cannot limit the Future's conception of justice.

Mr. Barbour: How do you know, doctor, that the next man who testifies on behalf of the public will be as reasonable as you are and will not say that the rates fixed by this Commission are all out of shape and much more excessive than they should have been prescribed by this Commission, and that the succeeding commission or the next generation may come down and charge against capital whatever distribution the directors have made under the rates prescribed by this Commission?

Dr. Bemis: I do not believe there is any absolute preventive in that. I don't know of any.

Mr. Barbour: Do you think it ought to be prevented?

Dr. Bemis: I think there would probably be more harm than good in trying to tie up the next generation.

Chairman Kutz: In other words, doctor, if ten years hence the cost of fuel should be double what it is today, you would think the rates which might be fixed by this Commission ought to be modified?

Dr. Bemis: Certainly.

Mr. Barbour: That is not the extent of the doctor's statement. But if the Commission ten years from now, making the same analysis of these past earnings as they have made for the past twenty or thirty years, concludes that there has been a fair return in their judgment, they will amortize that capital and say they should only have received in the past what they at that time consider they should have received in the past twenty years?

Dr. Bemis: I believe the only safe ground is to have a determination by the Commission as near to what they may determine to be justice as possible.

Mr. Barbour: But under your view, that is no determination at all. It is a mere tentative arrangement to be operative until displaced by some other.

Dr. Bemis: You cannot prevent that by any system, as I believe, of constitutional control. You have got to face that as inevitable.

Mr. Barbour: You do not think that the benefit and income earned by a corporation under a rate prescribed by law belong to that corporation, do you?

Dr. Bemis: Not fully. I think if the rates are too high——

Mr. Barbour: To what extent do they belong to the corporation.

705 Dr. Bemis: I could not answer that directly. I cannot answer that question directly.

Mr. Barbour: You do not think any of that property or its profits really lies in private ownership?

Dr. Bemis: Yes.

Mr. Barbour: To what extent?

Dr. Bemis: Only in the extent to which public opinion considers it to have been reasonable.

Mr. Barbour: And I believe you said the other day, doctor, you were not a socialist?

Dr. Bemis: No, sir.

Mr. Barbour: Do you still adhere to that position?

Dr. Bemis: I do not believe the government can own and operate all capital, which is the socialist position. I have stated, I think, more than once that I believe that a certain amount of approach to a medium ground, as including actual cost and reproduction cost, is fair.

Mr. Barbour: You are getting away from what I am talking about. I am talking about the right of people who have contracted with the government to have the benefits of their contract.

Dr. Bemis: A strictly verbal contract, like the grant of a right for 25 years to charge a 5 cent fare in a city is a contract that I should not think could be broken. I do not advocate its being broken, but the right of regulation, as I understand it, is recognized as a right that can never be forfeited or given away.

Mr. Barbour: The right for regulation in futuro, doctor, I am not disputing with you, but the right for you to come here and prescribe what rate in the past should have been charged, and fix my capitalization upon that is where I do differ from you. You grasp it, do you?

Dr. Bemis: Yes, sir; in other words, it all revolves, to my mind, about the one conception of how far the present owners are innocent investors, and to what extent the government is responsible for it.

Mr. Barbour: The question is to what extent the owner of a property contracting with the government is entitled to the fruits of his contract; and I am assuming that the contract is fairly entered into. Upon what principle of morals can you say I am not entitled to the earnings of such a rate whether we consider it a fair rate or not a fair rate?

Dr. Bemis: I do not know where I could find that there has been any such contract, we will say, in this case, or in the case of other utilities of Washington, entered into between the government and the utility that should limit the determination of a fair value and a fair rate of return. They were allowed to earn what they could under the rates.

Mr. Barbour: Once they were earned were they not entitled to distribute them to their stockholders?

Dr. Bemis: I will not deny that. That is a further step that is

sometimes taken, that a property built out of surplus earnings,
706 as in the case of the Haverhill Gas Company, should not be allowed much of a rate of return, not but a very small rate at least.

707 Depreciation—Bemis.

Mr. Barbour: Doctor, it has been testified here that this property has been thoroughly kept up and that all money has been spent on it that should have been spent on it in taking care of depreciation and all that, and that it is capable now of rendering 100 per cent service. I would like for you to explain to me upon what theory of morals I am not entitled to all of the income that I could have gotten from that company under the rates prescribed by law?

Dr. Bemis: You are not entitled to call your principal intact when it has been impaired, when a part of your capital has been returned to your stockholders in the form of dividends when it really should have been reserved to meet depreciation.

Mr. Barbour: It is all mine or that of the company that owns it. The original property belonged to the company, didn't it, the day it was finished?

Dr. Bemis: Yes.

Mr. Barbour: All the service that it was capable of rendering belonged to the company that owned it, and they gave out that service to the public for a rate prescribed by law to be paid by the public, and it has been done. Why am I not entitled to all that I get for it, in addition to keeping up my property? If I want to set aside a reserve fund I can do it, and if I do not want to why can't I reinstate it whenever the necessity for it arises in order to enable me to carry out my undertaking to the public?

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Dr. Bemis: If the earlier stockholders have distributed, in the form of nominal earnings, what really was necessary to take care of the property, the later investors are subject to that burden.

Mr. Barbour: I am talking about the property between the public and the company.

Dr. Bemis: Assuming that the public has paid the company enough to take care of the depreciation that has accrued.

Mr. Barbour: Not enough to take care of that depreciation, but has paid them the rate prescribed by the law without regard to the depreciation.

Dr. Bemis: But the theory under which that rate is paid——

Mr. Barbour: There is no theory about it. It is a contract prescribed by law. The law says I can charge the public for this service to come by *concertain* standards to be required by a regulating body.

Dr. Bemis: My understanding is that such rate ordinances are supposed to include the return to the company of a fair return on its investment, together with the amount to keep up the property, and if it is not kept up then it is its lookout.

708 Mr. Barbour: We are not discussing a purchase case now, doctor, I can see from your statement that in that case it would have a very legitimate bearing on the purchase price, but I am not talking about that at all. I am talking about my right to the income produced by my property at rates which the public has said I am entitled to charge the public for it.

Dr. Bemis: I do not conceive that the contract that you speak of as a contract is free from certain implied *underdtadnings*, one of which is that the rate was sufficient to take care of depreciation as well as a reasonable return, and that it was the fault of the company if it did not use its revenues in that way, and I cannot interpret in any other way certain statements to that effect by the United States Supreme Court in the Knoxville water case, and also the appellate division of the Supreme Court in the Kings County Gas case. I think you will find it implied in the Minnesota Rate case, and in the Des Moines Gas case.

Mr. Barbour: Doctor, they were all rates for the future, were they not, that is, rates prescribed for the future? They did not undertake to write off capital or capital investment in any of those cases?

Dr. Bemis: But in fixing a basis for rates the Master was understood to have written off depreciation based on condition, age and life, and he so states, and the Supreme Court quotes him as stating it.

Mr. Barbour: The only jurisdiction the Supreme Court of the United States held there was to stand between the confiscation of that property under the rate, wasn't it? That is all they passed on, that the rate did not result in confiscation, and their jurisdiction was ended? It did not have anything to do with fair return?

Dr. Bemis: Some so interpret the decision. Some believe it took into account reasonableness to some extent, although primarily I suppose confiscation is the theory.

Mr. Barbour: Their only jurisdiction was on confiscation and not reasonableness?

Dr. Bemis: I would not go so far as to say they made a great difference in that case.

Mr. Barbour: Doctor, did you undertake to find any fault with this property from a service standpoint?

Dr. Bemis: I have not attempted to.

Mr. Barbour: It is a property that has been in operation for a number of years. Don't you assume it has reached practically a constant basis of expenditure for replacement?

Dr. Bemis: If you take a five year period I should probably say so.

Mr. Barbour: Would not, in your opinion, all replacements be taken care of annually on practically a level rate?

Dr. Bemis: I would not say absolutely annually, but perhaps on a five year period.

Mr. Barbour: And ignoring increases in the value of the property from additions, extensions and so on?

709 Dr. Bemis: I assume the percentage would grow with the growth of the investment, that is, I mean the percentage remaining the same, the total dollars would grow with the growth

of the investment, and yet one never can be absolutely sure that some large change may not come once in a generation.

Mr. Barbour: What do you mean by "Change?"

Dr. Bemis: Some change of site of a powerhouse which will mean the scrapping of everything in it. That would be the most important change in the case of a company like this.

Mr. Barbour: But no such element of depreciation as that is included in these estimates?

Dr. Bemis: No, sir.

Mr. Barbour: And I believe you also said it was negligible in the case of this property?

Dr. Bemis: I said as a matter of estimate.

Mr. Barbour: So you would not allow us any additional rate on account of that for this case under your theory?

Dr. Bemis: Unless I wrote off depreciation for the sake of it. That has not been written off, but I see no reason for the other. I do not say that this company should build up a present large depreciation reserve. I say that a certain portion of what is going into the property as nominal extensions, or what has gone into the property as nominal extensions were not extensions at all so far as new material was concerned, but in reality was the investment of what should have been depreciation reserve to take care of accrued depreciation. Perhaps there will not be any more of that needed, but in the past there certainly has accrued a considerable depreciation, and, therefore, I consider that part of what has gone nominally into extensions was really an investment of what should have been called a depreciation reserve out of earnings.

He assumes that this so-called depreciation he refers to has not in any way interfered with the serviceability of the property, nor has it interfered with the value of the service rendered by it, but depreciation should be written off or a depreciation reserve built up because the property as a mass of units has not the value that it had when those units were new.

Mr. Barbour: You don't think merely because a piece of property has grown a little older and is not brand new, the service is anything less?

Dr. Bemis: No, but the value of the meter has deteriorated. I didn't say the value of the service.

Mr. Barbour: You don't think it is worth any more to ride from Union Station up here in a brand new automobile than one that is six month's old, do you?

Dr. Bemis: No, sir.

Mr. Barbour: Although 20 per cent of its useful life has elapsed?

Dr. Bemis: Of course, the practice normally in the case of a big taxicab company is such as to equate the depreciation over the life of the taxicab.

710 Mr. Barbour: You don't think the price of eggs from an old hen should be less than from a young hen, do you, merely because she may have gotten a little older?

Dr. Bemis: No, but the price of the hen may be less.

Mr. Barbour: I am not talking about the price of the hen. I am

talking about the service. You don't think that milk from an old cow should be less than from a young cow?

Dr. Bemis: No, sir.

Mr. Barbour: And you don't think your fees should be reduced as you advance in life as long as you are able to render 100 per cent service, do you?

Dr. Bemis: No, sir. I think that is true.

Mr. Barbour: That is what we are all interested in, is it not, the value of the service?

Dr. Bemis: No, I think we are considering the property, too.

Mr. Barbour: After 20 or 30 years this property is just as efficient as it ever was, and so stated. Why should the price of the service be depreciated if that is the only element, merely because the instrumentalities have grown a little older. They have been maintained thoroughly all the was through.

Dr. Bemis: The rate of renewal is much greater in a property that has an average age of 10 years than one which has an average age of 2 years.

Mr. Barbour: That would be a reason, doctor, would it not, for our increasing the rate if you have more depreciation to take care of, rather than cutting it?

Doctor, how do you draw any distinction in principle between the service rendered by a company such as this and the service rendered by such a man as you, for instance? Should your service and compensation be cut down because you are older now than you were ten years ago?

Dr. Bemis: The rate of charge for service is a little difficult to apply for an individual and for a utility like this.

Mr. Barbour: You are in public service, are you not, just like a municipality is, or a public utility is?

Dr. Bemis: One may say this, that the life of an individual is a thing that insurance companies recognize in their mortality tables and they collect from those who wish to be insured for meeting that difficulty.

Mr. Syme: If you were to die tomorrow, doctor, your expectancy of life as to your value to your family would be a matter of evidence before a jury to determine how much they were damaged?

Dr. Bemis: Yes, sir.

Mr. Barbour: Is that the line of distinction you draw? It would be assumed that as long as you are 100 per cent efficient rather than diminishing your service it would increase your service, wouldn't it, growing out of your enlarged experience?

711 Dr. Bemis: I do not see how that bears upon the question of a continuing utility which does not die with the individual, but which has, nevertheless, parts that are all the time disappearing and die after a certain time, or at least are all the time disappearing.

Mr. Barbour: They say the same is true of the physical man. He is apparently the same, but his body is really changing all the time, and it is just the same way with a machine of this kind.

Dr. Bemis: You take insurable lives and you will find the value of life is considered to be much less when a man is sixty than when

he is forty years of age, although he may be apparently in equally good health.

Mr. Barbour: But his earning capacity is just as good as long as he is able to render 100 per cent efficient service, isn't it?

Dr. Bemis: Yes, indeed.

Mr. Barbour: For that reason your rates increase rather than diminish, or should increase rather than diminish, ought they not, but you are prescribing exactly the opposite rule for a utility, and diminishing their rates as their age increases.

Dr. Bemis: My idea is that an equated rate based on the weighted life of the various aprts, as Mr. Pillsbury in fact has worked it out, indicates a fair method of depreciation, and it will be about the same probably for the plant now as it would have been a few years ago.

Adjourned to Tuesday, November 21, 1916.

712 Fair Value—Bemis.

The witness approached the subject of fair value from a rate making standpoint and not from a condemnation for purchase standpoint.

Asked to explain the distinction, he said:

"More attention is paid to prospective earnings in a condemnation case, and yet not necessarily are the present earnings even then taken as the basis, but the earnings that are likely to be under regulation from time to time; but sometimes regulation will be somewhat liberal, and there may be under regulation some excess of earnings, especially after two or three years from fixing of rates that would be capitalized at somewhat more than the value that would be fixed for rates which would ignore the earnings.

"A rate that has been fixed by law sometimes becomes an excessive rate through the growth of the business without a corresponding growth of investment and expense, so that there may be in between rates fixing periods some considerable excess."

Mr. Barbour: To whom does that excess belong in your view?

Dr. Bemis: That depends on the orders of the rate-making body and the orders under which they are operating, but in the absence of any special provision relative to the surplus, those earnings are usually accepted as belonging to the company. I think we are approaching more and more a period of regulation where property built out of surplus will be recognized as entitled at least to less rate of return than property built out of contributions of the stock and bondholders, but I do not see that we have reached that yet in most states.

The witness thinks we should reach such a state; that contributions by consumers should not be so liberally rewarded as sacrifices by the investor. That goes back to the fundamental question as to whom those so-called excess rates belong, but he is strongly inclined to Jeremiah Black's agency theory which you will find more or less

in the courts. I do not think we have fully reached it. I believe that is the correct theory. There has to be a gradual adaptation of the public mind probably to it, or a gradual acceptance of it.

Dr. Bemis: It is based on the idea that all roads are highways, and that the right in the street is practically very much like a highway, and the right under the street or over the street, and that the public never can completely part with that, and can always control charges on the public highway.

Mr. Barbour: I am not discussing the right to charge rates and to fix rates operative in the future, but when you come to affect a future rate and a future base of return by what has been a past income, are you then not dealing when you say that is a contribution by the rate payer rather than a contribution by the stockholder—must you not necessarily base that upon the idea that that rate, and the proceeds of it, belongs not to the corporation to whom it is paid, but that it is merely a trustee, you might say, for somebody else?

Dr. Bemis: Applying the theory fully, I think perhaps that
713 would follow. In other words, the mere fixing of a rate by a regulating body does not mean that that rate will continue to be reasonable until the next time they investigate the matter. It may have become unreasonable, although not realized as such before it is readjusted. However, in order to make it clear in this case, I would say I have not assumed to inquire whether the property found by Mr. Pillsbury or Mr. Sangster had been paid for out of surplus or not. I did not deduct on account of that attitude of mine. I am only speaking of what I think we will approach in the time to come, which I think to a considerable extent has already been reached in the state of Massachusetts.

He is convinced that theoretical depreciation should be deducted but he does not think that depreciation is property. I am simply following the ordinary accounting rules.

Mr. Barbour: You have undertaken to deduct proper capital charges that have, through erroneous bookkeeping methods, been charged to operating expenses, have you not?

Dr. Bemis: So far as they were obvious, but pretty largely the records have been taken as found, but any obvious adjustments that were found were made, and we always keep an open mind to make such further adjustments if convinced that they should be made.

Mr. Barbour: But all you have made you have written them off as you say by excess return, haven't you?

Dr. Bemis: Yes, sir.

Mr. Barbour: Doesn't that involve the proposition that you are inquiring back into the fairness of a rate prescribed by law?

Dr. Bemis: Excuse me. I think my remark was a little hasty when I said they were written off out of excess return. I did not say that in the testimony on direct. I simply did deduct them from the income in order to ascertain what was left, and reached the conclusion that certain percentages of income were left after making that deduction from both sides of the equation.

Mr. Barbour: You did not fix what you thought was a fair rate

of return, but you said whatever was left after paying those things was sufficient?

Dr. Bemis: It appeared to me to be sufficient for a fair rate of return.

Mr. Barbour: Have you not in that way written out of the capital account, or declined to put into the capital account, whichever you choose to put it, the legitimate and proper organization expenses, accounting for them through return?

Dr. Bemis: In the accounting chapter, which I think is what you are referring to, I left in the account, I believe, any salaries or expenses that Mr. Sangster had left there, but certain discounts, and possibly legal expenses connected with organization, were included in the column that I wrote off; but I think I wrote off comparatively little organization expense as such, if I did any. There was not a great deal that could be directly called organization expense in Mr. Sangster's report, and I think it was not disturbed to any extent at least.

Mr. Barbour: You wrote at least $1,125,000 off, didn't you?

714 Dr. Bemis: That I did not call organization expense.

Mr. Barbour: That was in these items of organization expense.

Dr. Bemis: I did not so consider them. The list given on page 2496 of my testimony is six items taken from Mr. Sangster's report, totalling $1,124,178. The first item is "loss on property sold, scrapped or abandoned, less amount charged to operation, $388,953.85." I would not call that an organization expenses. I would call it depreciation.

The next item, "organization and financial expense of Potomac Electric Power Company, 1894-8, $682,786.53," is a division between nominal organization and financial expense, and from a study of Mr. Sangster's report I thought it was not that sort of an organization expense that comes from the incorporation of a company and the payment for a franchise to the District, and the other expenses, legal, charter fees, which are commonly called organization, but so far as they could be called strictly organization expenses they were excluded, that is, the whole item was excluded, but I considered that most of that was more in the nature of payment for franchises or costs of raising money.

I said in my testimony, and the heading so indicates even on this page, that these are deductions from assets that should be accompanied with corresponding deductions from gross income. In other words, I stated, as I remember now, in my testimony that I did not criticise these expenditures as being wrong or subject to particular comment when incurred, but that they should be amortized out of earnings, and I did so write them out. The same is true of the interest charges farther down on this page 2496.

I assume that those charges did all represent sacrifices by the investor.

These items, amounting to $1,274,178, are just as real cost and

just as real sacrifices to the builders of the property as the amount they paid for the power plant, for instance.

Mr. Barbour: How much, doctor, of the items making up the $2,385,340.13 have you undertaken to write off through earnings, I mean? Is any portion of that written off through earnings?

Dr. Bemis: No. That amount of $2,385,340.13, as given on page 2497, is not counterbalanced by any deduction from earnings, but is excluded from the capital account without compensation to the investors.

Certain materials are referred to as in the nature of materials and supplies and working capital, here termed "bills receivable," "accounts receivable," "cash and deposits," are taken care of in the study of working up the materials and supplies and working capital. The materials and supplies were left intact, and the working capital was left substantially as worked out by both Mr. Pillsbury and Mr. Sangster, but not as shown there. The sinking fund was not disturbed.

The item of "investments, $1,138,855.80" is described here as consisting of the million dollar stock of the Washington Railway & Electric Company, and was described in my testimony as something that I had not investigated, and I found there had been no report made to me of the company utilizing the site, but I stated I thought some further investigation might well be made of that situation. The rest of the item related to the purchase of a cemetery for $116,155.80, and $20,000 for some bonds of the Washington & Rockville Railway Company, a suburban line, and $2,700 for the purchase of shares in some testing laboratories. Those were excluded as outside investments, and not used in the business of the company as a public utility. Property abandoned was altogether excluded, and construction in process was excluded merely on the ground that it was a small item, $1,586.28, which properly should not be excluded but should be allowed for. However, it was a small item to make adjustments on, and would be one of the items I would cover in possible omissions in an allowance I gave in my direct examination, so that the direct exclusions were property abandoned $39,869.46 and investment $1,138,855.80.

Mr. Barbour: Materials and supplies, bills and accounts receivable, cash and deposits represent working capital, do they not, doctor?

Dr. Bemis: They are one phase of it. Of course, you have got to deduct certain elements.

Mr. Barbour: How much?

Dr. Bemis: $727,521.40.

Mr. Barbour: You have allowed in lieu of that actual working capital used by the company about $235,000?

Dr. Bemis: It was $260,000, as I remember the figure that I allowed, but it was based on one-eighth of the operating expenses together with materials and supplies, which I took at $150,000.

Mr. Barbour: At the time this balance sheet was taken these were the actual recorded working capital costs, were they not, $700,000?

Dr. Bemis: As I understand it, even for a particular date there should be a deduction made for certain items payable.

Mr. Barbour: How much?

Dr. Bemis: I haven't that before me. I don't know now. In the Baltimore case he allowed four and a half months there plus an allowance for working capital. He is more and more coming to the conclusion that that is the only rule that should be followed.

Mr. Barbour: In the Baltimore case did you not testify as follows in regard to it:

"I notice that the entire operating expenses and taxes of both gas and electric departments for the year ended June 30, 1911, as reported by the company, is $2,455,440.26. Now, the average for one-quarter of the year, or three months, is one-quarter of this amount, $613,860.07, and the theory that a company which collects its bills monthly and has comparatively few losses from bad debts that a working capital sufficient to carry the company three months would be considered. I think a sufficient amount of working capital, an amount sufficient to pay all the expenses for three months in a company which gets its bills every month to my judgment to be a sufficient sum, and yet it will be noticed later I have given 50 per cent more than that, which would be equivalent to four and one-half months."

Didn't you so testify?

Dr. Bemis: I think that is the only case where I have done it, and I did not remember that I had done it then.

Mr. Barbour: Going back to the working capital which you allowed—four and a half months—in the Baltimore case, you said that that was exclusive of capital for construction and extensions. Have you made any allowance in this case for capital necessary for extensions?

716 Dr. Bemis: I have considered the subject, and it is one of the hard questions upon which I have not reached a conclusion. I notice Mr. Pillsbury allowed about $23,000 for it, and it is possible that some small amount should be allowed. I have thought, however, that if interest during construction were allowed in the reproduction theory and in the recorded cost that that would certainly take care of all claims of interest.

That includes extensions. If there is allowed five or six per cent on the average time they are out of pocket between paying for construction and getting revenue from it, that certainly covers their situation. Now, if in addition to that you are going to have them have some of that on hand and allow them interest on that you are allowing them double interest on a portion of the working capital.

Mr. Barbour: Doctor, have you any knowledge as to what the average construction expense of this company has been yearly for, we will say, the past five years?

Dr. Bemis: My offhand recollection is that it is not far from half a million dollars per year.

Mr. Barbour: Do you think $23,000 allowance will finance that?

Dr. Bemis: No, sir. Mr. Pillsbury in his estimate covered that, as I considered, entirely by allowing you interest during construction.

Mr. Barbour: That was for property already constructed, Doctor. You have got to have ready money in the till, haven't you, to do it

with, especially when you are under the Commission's regulation and cannot issue securities without the Commission's approval.

Dr. Bemis: All I am seeking is to avoid double interest. All the interest that you psay for money issued for extensions henceforth I assume would be paid under the approval of the Commission and would be a charge on your revenue.

You are entitled to interest on all expenses of this construction in the future. As to the past I thought, and I yet do not quite see why I am not right, but I want to think it over a little more.

In the Baltimore case he said "I think the capital on which a company is entitled to receive profits during the year is not solely the capital at the end of the year but construction and process during the year"; and he still believes that in addition to this allowance of four and a half months the capital for construction should be added.

Mr. Barbour: Has your continuous consideration of any question, doctor, ever resulted in liberalizing your views toward the operating company?

Dr. Bemis: I think it probably has.

Mr. Barbour: When?

Dr. Bemis: I would not undertake to say how exactly.

Mr. Barbour: Reverting further to this statement about "assets other than plant and property," on page 2485, the items we have been discussing are those which we think constitute the recorded working capital, and aggregate, you state, in the neighborhood of $700,000. The next item is "unamortized debt, discounts and expense, $219,576.56." What treatment have you given that?

Dr. Bemis: It was excluded as—I have forgotten at the moment what the facts were and why we excluded it, but I had reasons at the time. I may have to look that up. I may not be able to tell you offhand. I think it was excluded as not properly a construction charge, but I do not recall the details now. I probably can refresh my memory at the first opportunity. I would rather not testify on that until I have refreshed my memory. They have certainly not been amortized through his method of going back for returns.

717 Mr. Barbour: They were certainly proper expenditures originally, were they not, doctor?

Dr. Bemis: I find I did refer to the eighth item (I thought I did not) on page 2486, where I say, "the same is true of the eighth item, unamortized debt, discounts and expense, with this possible difference, that property abandoned should be amortized out of past earnings, while the unamortized debt, discounts and expense should be amortized out of both past and future earnings, so as to be entirely covered during the life of the debt for which discount or expense was incurred." Now, my recollection is that all this unamortized debt, discounts and expense has been covered in the subsequent table of deductions and adjustments in gross revenue. My recollection is, in fact my positive remembrance is that I instructed Mr. Sangster in preparing the table for me to follow the principle of deducting from the gross income everything deducted from the investment except the items which were directly and by name excluded in the table which has been referred to this morning, and which is given on page 2497,

of certain rights and franchises aggregating $2,385,340.13, so that subject to correction I believe that that entire amount has been properly taken care of from an accounting standpoint. If it has not been, I should, of course, want to make a correction there, but I believe my instructions were followed.

He would not say whether all the item of $219,576.56 has been amortized out of past earnings; he thinks not. He thinks this is the part that remains to be amortized out of the future earnings, as my recollection serves me,—the part that should not have been amortized out of past earnings but is an obligation on future earnings; but he does not wish to be positive in his assertion about it.

He does not know in round figures whether or not that $219,000 is in the capital account. If it is not in the capital account it should be allowed for in the future out of earnings.

Mr. Barbour: With the Chairman's permission, right along that same line I simply desire to call the attention of Dr. Bemis to a statement made by him on page 2486 of his testimony in speaking of this very item, where you say doctor: "Data produced by Mr. Sangster from his working papers show that past earnings have been charged with their due proportion of discount and other expenses connected with this account and that the figure given in the assets is entirely a burden upon future earnings." Doesn't that satisfy you we have not been compensated for that item?

Dr. Bemis: It would seem to indicate that.

Mr. Barbour: And yet you haven't got it included in your capital account?

Dr. Bemis: Yes, sir.

718 New Industry—Bemis.

Dr. Bemis: Comparatively speaking the electric lighting business is a new industry. A somewhat larger return is necessary to induce investment in a new interprise, then when it is older. It is very difficult to determine what period, referring to the electric lighting business, should receive that higher return or consideration. It depends very much upon the size of the city, the extent to which the business has been recognized as a monopoly, and so on.

Business was started here in 1882 when there was a very small plant so that they were well along in the advance period of the development of the business.

He has in some cases spoken of that risk as a gambler's risk. There are certain of the elements sometimes called that. It is purely speculative in the earlier days of such a thing.

If the ordinary return on an investment is 6 per cent he may not go into a new enterprise that seems to be hazardous unless he thinks that while he may lose all still he may make 20 per cent; yet if, as a matter of fact, he comes out of it with 7 or 8 per cent he may feel very happy.

They go in on a balanced expectation of possibly making 20 per cent and possibly losing their entire investment. From the very minute they went in they were in competition with gas.

Mr. Barbour: Would you regard *of* a return of 20 per cent as excessive for that.

Dr. Bemis: Yes, I think I should. It is very difficult to fix a rate regarded as excessive.

Mr. Barbour: Didn't you testify in the Telephone Case that you thought a return of twelve per cent would not be unfair?

Dr. Bemis: I think I modified that later either in that case or the next one I was in, but I think in that one. You are referring to the Pennsylvania Telephone Cases, are you not?

Mr. Barbour: Yes. Did you not, in the Pennsylvania Telephone case, say: "I think prior to 1885, one might have normally accepted probably ten to twelve per cent"?

Dr. Bemis: I think I stated that on one day, and then on further consideration recognized the force of the thought that there were many cases where less was obtained, and yet the securities sold very well in the market, and that that was too high.

Mr. Barbour: Didn't you say that the second period would be from eight to ten running through the 90's, you said?

Dr. Bemis: I don't recall now, but it may be.

719 Testing Laboratory Stock.

Mr. Barbour: Suppose it appears, doctor, that possession of the stock entitles this company to have all of its lamps tested by a certain process, and that that is in use constantly, and that all the lamps used by this company are tested before they come here by virtue of the ownership of this company of this stock, do you not think that should be restored to capital account?

Dr. Bemis: If I understand your statement correctly, and if it contains all that is involved, it would seem that it perhaps should be. If they obtain results commensurate with the investment, if the investment was necessary to secure certain valuable results, it would be assumed that it was proper to include it in the capital account But in that event the earnings from the investment in the shape of dividends would have to be included in the total earnings of the property from electric light and *power* sales in the determination of reasonable rates. The income would be included from all purposes in that case.

Mr. Barbour: Did you include them?

Dr. Bemis: The table on income was prepared for me, as I have stated, by Mr. Sangster on instructions to include the income properly pertaining to the operation of the company. I do not have this particular point in mind, and I do not know how the esrning from such shares, which naturally would be small, was treated.

Mr. Barbour: If there were dividends and they were included, then the item should be kept in the capital account?

Witness turned over to Mr. Pillsbury only and solely the actual construction side of reproduction cost and reserved for himself the consideration of the first chapter "Cost Preceding Construction" and the third chapter "Cost Following Construction". He did not for-

bid Mr. Pillsbury to give consideration to those items because he knew his views did not coincide with him on that subject.

He did not consider that these were primarily engineering questions, but legal, economic and ethical, questions of public policy, questions dependent upon rate decision by commissions and courts.

Mr. Pillsbury is a man of experience and qualified to express an opinion on those subjects.

The witness allowed for Cost Preceding Construction but the sum of $75,000 which was supposed to cover promotion, incorporation, certain legal expenses, and so on, that would be connected with organizing the company; any payments for securing franchises, if any, to the District in this case, and any discounts in securing the money. The discounts, however, I covered in that assumption that the company's long profitable life justified our amortizing any discounts that might have been required; so that practically it was the other elements that were directly in my $75,000.

There were lists of them in the accountant's report in the earlier pages. There was the United States Electric Lighting Company. There was the one from which it grew of substantially the same name, only of New York instead of the District of Columbia. There were three or four companies merged into the Potomac Company, with whom the United States Electric Lighting Company finally consolidated in 1902.

He knew at one time what companies *he* been merged or brought into or incorporated by purchase into what now constitutes the Potomac Electric Power Company but he made no independent investigation. He made no investigation of the Heisler Electric Company—read in the cross-examination some reference to it and also with regard to the Brush-Swann Electric Company. He knows nothing about how their properties became incorporated into the property of the United States Electric Lighting Company, further than what he may have read in the testimony. The only study he has made was of data that he has already mentioned from Mr. Sangster's report on the subject and perhaps some additional data in the cross-examination.

720 Mr. Barbour: Did you undertake to make any allowance for organization or promotion of these various companies, their financing, legal departments, their discounts, and so on?

Dr. Bemis: I considered that the accountant's report covered the actual cost that had been recorded. But in the engineer's report it was to that more particularly that I allowed the $75,000 as perhaps what would be the cost today of such organizaion.

He made this addition under the reproduction cost and it was not in the recorded cost that he added it in at all.

Mr. Barbour: So you put nothing into your recorded cost at all for it?

Dr. Bemis: No. I believed that recorded cost has covered the items of record as to those expenses.

Mr. Barbour: Didn't you wipe out everything, and didn't Mr. Sangster wipe out everything, so far as that is concerned, doctor, of

those taken over companies except their physical properties that he could trace, and charge everything else up as franchises?

Dr. Bemis: I think that was included in these items to which I was testifying, that aggregate the items which the company was justified in spending money for and which should be excluded or written off out of earnings subsequently earned.

He just took the lump sum of $75,000.

On the reproduction theory all of these expenses would have to be incurred and it was on the reproduction theory that he added the $75,000.

Organization expenses and expenses dependent on organization do not go out of existence as a bond but as the amount is so small anyway in those small companies, as they were organized years ago, it is practically a negligible quantity in his opinion; but if it is not amortized out then it simply increases. If it is not treated as he treats it, simply to that exent it increases the profit of the company as well as its capitalization, because every thing that is not in the capitalization has been amortized out of earnings, and the earnings set up are proportionately reduced, except these three items that are referred to on page 2497, which were franchises and rights. Everything on the books has either been included or amortized out of earnings. If anything is put back into capital it also must be restored to earnings.

Mr. Barbour: Mr. Sangster designated them franchises, and under each heading he included everything that the books showed which could not be accounted for by physical property which he found?

Dr. Bemis: Yes, sir.

Mr. Barbour: So all of these costs, if they were in there, you just charged them up as franchises and wiped them out?

Dr. Bemis: All these costs in these three items on page 2497 I took as franchises.

Mr. Barbour: He called them franchises, etc., and you designated them as franchises and wiped them out because they are franchises. He kept them in, as I understand it, because he could not find physical property to account for them.

Dr. Bemis: I conferred with Mr. Sangster as the investigator of this phase of the work, and understood from him that he believed they were nearly all, and probably all, purely franchises.

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721 Dr. Bemis: In financing an enterprise of this kind along new lines, such as the electric lighting business was when this was started, the costs of financing are higher than for a similar company in a stabalized, established line of business, and it was intended to include all that. It was assumed by himself that all that had gone onto the books and those early costs had been included in these items which he reported and which I provided for amortizing out of earnings.

Mr. Barbour: Do you still adhere to the statement made before

our suspension that those early expenses have not been eliminated by Mr. Sangster?

Dr. Bemis: There was one item which we discussed this morning of $219,576.56 appearing on page 2485 and described on page 2486, which should be taken into account by the Commission in allow-ng a revenue sufficient to pay interest thereon and amortization thereon so as to amortize by *the* them the debt is due for payment. That would be a small sum annually. It should be, therefore, added to the amount necessary to develop a reasonable return on the fair value that may be fixed by the Commission, if the Commission directly ignores this item, as I have done.

Mr. Barbour: I was asking you about these charges. I had gotten through questioning you about that unamortized debt, and you conceded that it ought to be included and refunded, although you had omitted it. As it appeared from your records, they do not treat it as a debt, do they?

Dr. Bemis: I was going back a little to make it more clear.

Mr. Barbour: I was asking you if you had adhered to the proposition that you still had included in the recorded cost the same expenses that you have here in the reproduction cost, $75,000.

Dr. Bemis: I have included in the recorded cost the item for elements entering into this item of $75,000, but have amortized it out of earnings.

Mr. Barbour: So they are not included in this figure, $6,850,000?

Dr. Bemis: No.

Mr. Barbour: Why is it, Doctor, that you do include that in capital that should not be amortized in reproduction cost, but do not include it in capital that should not be amortized in recorded cost?

Dr. Bemis: The reproduction cost is a cost as of the present. The company is assumed in that not to have had any earnings as yet from which it could amortize.

Mr. Barbour: Those are constant expenses and will always be in any company that is to be reproduced, are they not? Just as much as a power house, just as essential as a power house, are they not?

Dr. Bemis: Yes.

Mr. Barbour: Why do you undertake to amortize that expense and not amortize the cost of the power house?

722 Dr. Bemis: Well, it is because they are not directly inherent in the physical property. They are not seen in an inventory; they are more or less intangible. I believe, if the earnings will permit it, such intangible elements should be amortized out of the property, representing the purely physical property; but the $75,000 is not a large sum if it is left in.

Mr. Barbour: In the reproduction cost, Doctor, if you had included this $75,000 because there has been no chance to amortize it, why do you not include all the other overheads—the overheads on physical construction, organization, everything?

Dr. Bemis: The overheads on physical construction that are reported by the accountants have not been amortized; they have been left. It was only the organization expense, and discounts and those

other few items mentioned on one of these pages that were amortized. I refer to page 2496.

Mr. Barbour: Yes; but these items aggregating $1,274,178, appearing on page 2496, are items deducted from capital account in addition to the items mentioned on page 2485.

Dr. Bemis: Yes.

Mr. Barbour: Because they are all included in the total of $14,110,000?

Dr. Bemis: That is right; and of those on page 2485, most of them are left. Really, I consider they are left unaffected by my discussion except the Great Falls rights. There has been no rejection of any sinking fund; there has been *jo* rejection of materials and supplies and other working capital.

Mr. Barbour: You have rejected all the working capital shown on page 2485?

Dr. Bemis: No.

Mr. Barbour: Except $260,000.

Dr. Bemis: I consider the rest should be balanced by certain liabilities.

Mr. Barbour: What are those liabilities you say should be balanced by it? Do they balance it?

Dr. Bemis: In a period of the last three or four years I understand that Mr. Sangster's analysis shows that they are; that there is left only an average balance of $90,000.

723 Preorganization Expenses—Bemis.

Mr. Barbour: Doctor, in these preorganization expenses, when you get to the period of reconstruction, as I understand it, the feature of it that you permitted Mr. Pillsbury to be unhampered on, you asumed that all the money was already raised, the organization perfected, and all that was necessary further was the actual preparation of the final plans for the buildings, the construction of the plants. Is that correct?

Dr. Bemis: And the location of the conduits, of course, and all that; everything of a strictly engineering nature.

Mr. Barbour: The $75,000 that you have allowed covered all preliminary engineering, the preliminary investigation, all preliminary financing, all legal fees and cost of every kind and character incident to the organization of the company as a company and the organization of the officers, completing a constructing organization as well as an operating organization?

Dr. Bemis: I would not say that that was intended. I understand Mr. Pillsbury included constructing organization with the construction costs.

Mr. Barbour: It is assumed that the company is organized and incorporated prior to construction, and the estimated costs of such organization for construction only exclusive of all costs of promotion, financing and operation, are included.

Dr. Bemis: That is my understanding, yes; but your questions included organization for construction. I said I understood that

was covered by Mr. Pillsbury and it seems it is, from what you have said.

Mr. Barbour: In getting the organization together, the building, and all the organization, with the officials, would cost, would it not? An organization of that kind and character does not spring up full armed, does it?

Dr. Bemis: The only organization that I assumed to exist prior to the time construction was started was a board of directors with a president and other officers, an office for their meeting, and certain preliminary—he did not cover the organization of an engineering staff to cover construction and plans or make construction plans. That I assumed was in Mr. Pillsbury's study of construction costs.

Mr. Barbour: But if Mr. Pillsbury said, or to the extent that he said that those costs were not included in his statement, does your estimate fall short?

Dr. Bemis: If any plans for construction were not included by him, they should be added, because I have made no allowances.

Mr. Barbour: So far as preliminary surveys and investigations go, you say that you presume the money is already procured. In order to get the money, to know how much money to get, you have got to have engineers on the work, have you not?

Dr. Bemis: I do not assume that all of the money is secured before the very beginning of construction. Arrangements have been made for financing, but part of the funds would not be produced until later.

724 Mr. Barbour: I know, but the money has been secured and successful negotiations for the payment of the money?

Dr. Bemis: That is true.

Mr. Barbour: In the Baltimore case you allowed $150,000, did you not, for office, salaries, legal and miscellaneous expenses before beginning the construction?

Dr. Bemis: It may be. If you say I did, I will accept it.

Mr. Barbour: This is your report, is it not, Doctor—the original or a carbon of your report?

Dr. Bemis: Possibly. I have not looked at it since.

Mr. Barbour: Now, doctor, if you allowed for these things in that case, $200,000, would you say that the $70,000 was exceedingly meager in this?

Dr. Bemis: If that was a correct allowance.

Mr. Barbour: You said it was, doctor, did you not?

Dr. Bemis: My further studies have led me to think that that $75,000 is sufficient here.

Mr. Barbour: To the extent to which these costs have been eliminated, if they have been eliminated, from Mr. Sangster's report, they should be restored?

Dr. Bemis: No; I do not think so.

Mr. Barbour: Even if they have been eliminated and no consideration paid them, you do not think they should be restored?

Dr. Bemis: That alters my understanding of your question. You say, now, eliminated and no consideration given to them. I thought you meant eliminated but amortized out of earnings.

Mr. Barbour: Is there anything here to indicate that they have

been amortized out of earnings? Where is there anything here to show that anything of the kind has been amortized out of earnings?

Dr. Bemis: If you will turn to my table, called C-1, facing page 2536, to turn to the second column, headed "Organization expenses, amortization of discounts, interest charged to construction and other deductions for the year 1899," there is a figure of $682,786.53 which has reference also to a footnote, where it is stated that of that amount organization expenses were $573,036.53. This total of $682,786.53 is the same total referred to in Mr. Sangster's report, page 15, about half way down the page. Again, opposite the year 1904, there is an item of $10,651.41, which is the item referred to also on page 15 of Mr. Sangster's report, near the bottom of the page, and there stated to be services and expenses in connection with consolidated mortgage contract for power supply, and so forth. All the items in this column which make up the total of $976,901.99 were deducted from gross income to secure the net income in the last column, which is carried forward, finally, to develop the ratio of net income to average investment, on page D-1 and E.

So that indicates what I mean by saying that organization expenses were amortized out of earnings.

725 Mr. Barbour: Those expenses were incurred in 1899 and in 1904?

Dr. Bemis: If you turn to Mr. Sangster's report, page 15, you will find that the larger item first mentioned, $682,786.53, is stated as covering organization, and so forth, expenses of Potomac Electric Power Company, 1897, to 1899; and that is the time, I believe, of the organization of that company, the existing company.

Mr. Barbour: Does that in any way reflect any organization expense for the United or for the Potomac Light & Power, or for the Brush-Swan, or for the Heisler?

Dr. Bemis: Apparently not; apparently they are included in the other figures given at the top of page 15 of Mr. Sangster's report.

Mr. Barbour: On page 2394, under another heading, that you reserve for yourself, in preference to having your engineers assist you in, are expenses that would follow construction, such as soliciting. Have you made any allowance for that, Doctor?

Dr. Bemis: No; I have considered it, but eliminated it. It is originally a part of it. They are actual expenses that would be actually incurred.

Mr. Barbour: In the same way, canvassing is a very real expense, is it not, that has to be provided for?

Dr. Bemis: Certainly. I do not recall how soliciting is set up here, at the moment, but it is so much a recognized fact that I believe it is required here. I have not the exact reference before me, however. I will look it up, or try to. I will admit, though, frankly, that it is often set up as a logical part of the reproduction theory. I am frank to admit that it is often done.

Mr. Barbour: What percentage is usually adopted by commissions for cost of attaching the business?

Dr. Bemis: All the way from zero in most commissions to 20 per cent in the New Jersey Commission in the Paterson-Passaic case.

I do not think it would be any burden on the company to anything like the extent—I do not think there would be any canvassing or soliciting. The whole thing is a purely mythical conception and never would occur except in the case of an earthquake.

The witness thinks that present day costs of construction, material and labor and everything that enters into it is one element that we have to take into account as bearing on value, or fair value, but thinks today there is somewhat of a medium ground between the actual cost and the reproduction cost.

Mr. Barbour: Do you agree with the statement made by Mr. Pillsbury that all of the copper, for instance, in our system, could be taken out today and scrapped and sold for higher prices than have been allowed by him in his reproduction cost?

Dr. Bemis: I thought that was probably true when I read it, but I would not consider it at all just to apply the reproduction theory in that way. If the reproduction theory was applied in that way it would certainly go to smash very quickly.

726 Mr. Barbour: You think that it has no bearing on the present value of the property of the Potomac Electric Power Company?

Dr. Bemis: No; they have directly rejected it in the Interstate Commerce Commission, the valuation division.

Mr. Barbour: And the fact that the steel and rails and lead and everything could be taken out and scrapped and sold for higher prices than have been paid for them, would not affect your judgment in any way?

Dr. Bemis: I would not consider it fair to take that as the basis. I think we should take normal prices over a period of years, and if we are going to consider this war as entering into that normal situation, some account might have to be given to it. But I look upon it as very abnormal.

He means by "abnormal" "Well, not to occur again for a generation."

Mr. Barbour: Do you think the prices for a generation will ever be as low as they were immediately preceding this war?

Dr. Bemis: I think that was a little lower than the average taken here for several years. I think before the war it was a little lower than it is likely to be again for some time.

Mr. Barbour: What do you include, Doctor, in your valuation in going value?

Dr. Bemis: The extent to which early deficits, if any, were not made up by later gains.

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The only going value that I think was in the mind of the courts lately, particularly the United States Supreme Court, in the Des Moines Gas Case.

Mr. Barbour: Have you ever made any allowance for going value?

Dr. Bemis: I think I have allowed something similar to that in one or two cases where they had been very unprofitable. But that was notably the Dallas Street Railways. In almost every case there has been a condition of profitableness, because there were usually rate cases or investigations brought by the public which were somewhat conversant in advance with the fact that the companies had been prosperous.

The witness thought that interest during construction in the recorded cost might amount to 2 per cent but he does not think he has allowed it; nor has he allowed anything for attaching the business in the recorded cost or in the reproduction either.

He allowed nothing for organization and development of the business except that in the recorded cost it was allowed so far as the books included it, and then amortized out of earnings; and has allowed nothing for it in the reproduction cost.

He determined not to allow these things but a few weeks before he testified when these tables were sent to him in Chicago.

Mr. Barbour: Did you not state in the Pennsylvania case that you thought that this law that you are acting under here required you to allow these things? And that you would allow them?

727 Dr. Bemis: I do not recall. That was two or three years ago.

Mr. Barbour: And in that case were you not asked this question:

"In your qualification you stated that you worked for the Public Service Commission of the District of Columbia making an appraisal of the properties of all the utilities operating in the District of Columbia?"

"A. Yes, sir.

"Q. On what basis did you make that appraisal?

"A. On both.

"Q. You are going to make it on the reproduction theory?

"A. I am trying to follow absolutely the law which requires certain things very definitely, and the Commission has asked me to give them everything that the law requires.

"Q. Now, Proceeding on that reproduction theory, what are you going to allow for organization and development?

"A. I have not decided yet.

"Q. Are you going to allow anything?

"A. Certainly.

"Q. And for interest during construction?

"A. Certainly.

"Q. And for cost of attaching the business?

"A. Certainly. I shall take all the items that enter into the theory of reproduction, practically all that you have here."

Dr. Bemis: I think I must have testified to that effect.

Mr. Barbour: But you have not done it, have you?

Dr. Bemis: No. I have as regards organization.

Mr. Barbour: What made you change your mind about that?

Dr. Bemis: The conference rejected it with regard to the railroad valuations in the last two years, which has led us to the consideration that many things which have been absolutely rendered unnecessary were a foolish expense of time and money, one of which was multiples of land and another was going value, and your going value may be set up where there are early deficits; but I mean on the basis of the value of an acquired income. We are not setting that up over there, and the whole question I might say was very much affected by later studies of the Des Moines Gas Case.

The Des Moines Gas Case had been decided when the Witness gave the Philadelphia testimony quoted—"but more study was given to it after that."

Mr. Barbour: Did you not on that same occasion make this response to a question:

"That includes the cost of attaching the business. That is set up as the cost of development or the going value as required by law as an element of value, as I understand it.

That I have not set up."

And you have not set it up?

Dr. Bemis: No. I then interpreted the law regarding both this work and that of the Interstate Commerce Commission as covering that, but I interpreted it, and others have too, the Des Moines Gas case as not requiring it, and if I had been doing this job over
728 again I should have instructed Mr. Pillsbury to take a different view of paving.

I think the court has entirely knocked out that theory on paving.

Mr. Barbour: But you have jumped to the conclusion that we have not cut through paving to put our conduits down. Do you know how long Washington has been paved?

Dr. Bemis: For a great many years.

Mr. Barbour: Long before these conduits were put down.

Dr. Bemis: I suppose you have gone into——

Chairman Kutz: These are questions of fact as to when the conduits were put down and when the streets were paved. This witness has no knowledge on that subject.

Mr. Barbour: That is what I am trying to develop. He has cut off 50 per cent of our value without knowing anything about it. That is what he has testified to. He has just brought it up a second time and flaunted it in my face, that if he had it to do over again he would have instructed Mr. Pillsbury not to consider it.

He states that he does not know anything about it, because Mr. Sangster in his report cannot allocate on the books actual expenditures for putting in pavements, he has cut it in two. That is the theory that he is going on.

Am I stating you correctly, Doctor. If I am not, I would be glad to state it correctly?

Dr. Bemis: Yes; Mr. Sangster states in his report the cost of pavement, the actual cost to the company of paving over the conduits, and he takes a figure which is about half of the base cost given

by Mr. Pillsbury. It is less than half after Mr. Pillsbury has added overheads. That applied to the bulk of the paving, which was over conduits I assume that it would apply with a little less force to paving over surfaces so I estimated that about half of the paving in Mr. Pillsbury's estimate could be considered as representing paving that was not actually put through by the company.

Mr. Barbour: Do you not know, as a matter of fact, that the very first conduit laid by the company was cut through pavement?

Dr. Bemis: I do not say that there were not some perhaps inferior types of paving in use on many streets in Washington, but what I say is that they recorded on their books the total cost of all the paving, and I understand that a great share was done by contract for the company by the District, though I have not gone into that directly, but I have been so informed.

Mr. Barbour: Do you not know, Doctor, that bundles of vouchers were produced here and identified by Mr. Sangster for work of this character which never had appeared in the capital account at all?

Dr. Bemis: I did not realize that. Some parts of his cross examination I had to go through rather hastily, because I only got it when I was starting here to testify. In so far as evidence modifies that percentage, it should be modified, I frankly admit.

729 He would certainly believe that pavements have been taken up and put down several times to put in additional conduits while in the reproduction cost it would only appear once.

If the witness' assumption is wrong then his conclusions are wrong.

730 Franchises—Bemis.

The witness has allowed nothing in the capital account for franchises or for patent rights.

Dr. Bemis: If it appears that capital was issued for those patent rights, then they should be treated the same as abandoned property remaining in capital account until they were written off.

If the company has not been compensated for such rights it is entitled to compensation for them with interest until they are amortized. "In other words the adjusted investment would have to be slightly changed and also the adjusted income."

He cannot say offhand that he has in the writing off that he has done included the capital investment or whatever was paid for patents.

731 The expense of financing in the opinion of the witness is not a construction cost. It is dependent upon the credit of the company investing in the property and is largely a function of the rate of return.

He has included in the recorded cost, discounts and wrote them off out of earnings on the assumption that they were at one time in capital account; and has allowed nothing for them in the reproduction cost on the theory that today a reproduction cost would start with possibly a discount or brokerage charge and possibly not; but

if it did, a very small increase in the rate of return would amortize that.

It would require cash to do it which would have to be compensated for with the actual money that was raised. It would be taken out of the money raised for capital. On a pure reproduction cost estimate there would be temporarily in the account an amount, possibly, for discount and brokerage. Nothing is amortized in the reproduction cost as stated by him.

On the reproduction theory the company would be entitled to a rate sufficient to amortize it. Also on the historical theory. "And until it is amortized we should get return on it."

But if it developed that the earnings have been sufficient to amortize it already, that is past discounts, then he would depart from the strict reproduction estimate when he came to that item. "But strictly and logically speaking a complete reproduction estimate, taken all by itself, might have that element in it, though I think it would always depend on the credit of the company and on the rate of return whether there would be a discount or not.

Mr. Barbour: Did you ever know of a $10,000,000 project being floated without brokerage and discount expenditures being actually made?

Dr. Bemis: They all come quickly in an entirely new enterprise—no I cannot say that I could put my hands on an instance, but I believe there have been instances.

To give you a concrete case, if this plant was suddenly obliterated, and we were considering the question of a new company to be built, with a monopoly, or practically a monopoly, with a commission allowing a rate of return sufficient to allow a fair return on the investment, they could get all the money they wanted to on an average rate of 6 per cent without discount or brokerage. A 5 per cent bond and a 7 per cent stock would be sold so much above par that they would counterbalance any brokerage charges and there would not be any discount.

The witness has not included anything for preliminary operation and adaptation expenses, except so far as Mr. Pillsbury provided for partial operation during the last year of construction, in which certain difficulties in the way of machinery would be ironed out, as he understood it. There was a provision for one merging into the other, construction into operation.

After a property is constructed at a given place, it has to be adapted and tried out, and adjustments made, before it can be trusted with carrying the load it was intended to carry.

If Mr. Pillsbury testified that in his judgment there ought to be additional allowance to cover that expense, the witness agrees that it should be allowed on the reproduction theory; and on the recorded cost theory, the witness has no item of that kind covering the Heisler Company, the Brush-Swann Company, the U. S. Company, the Potomac Light & Power Company and the Potomac Electric Power
Company, unless covered in the physical property the cost
732 of which was recorded on the books.

He was not aware that a report to the Senate Committee in 1896 showed that one of the companies taken over later by the Potomac Electric Power Company had represented an actual expenditure of capital in excess of $300,000, none of which appears in the capital account of the companies taken over. If such is the fact the witness would want Mr. Sangster to investigate that to see whether it would require a modification of his report.

If such properties have been abandoned or scrapped and Mr. Sangster has not taken into account the renewals that have taken place; if he has ignored those renewals because they were renewals, I think some further consideration should be given to it; but if, when those renewals came in they were treated, if they were such renewals, as new capital, he may have gotten them in that way.

If those expenditures were made and have not been compensated for otherwise, they should be refunded.

The witness has included nothing for development cost or going value in either theory and no franchise value.

The witness has not found any figure which in his judgment represents fair value of this property—nothing that he wishes to tie to.

He thinks that Mr. Sangster's report shows the amount of money expended in the construction and equipment of the Potomac Electric Power Company, using those words to mean what they should mean in a proper sense, that is expended in the construction and equipment of property now there. But it does not show entirely and by items the cost of the scrap heap and yet most of the totals that are in the scrap heap, perhaps, have been set up and then discarded.

He does not think that this statement is purely a supposition on his part.

He has assumed as correct, final and all inclusive what Mr. Sangster has reported.

He does not know personally but believes it was correct with always the human liability for error.

He has not gone to the books and vouchers and tested the work and has not examined a single voucher or gone through a single book.

In his summary on recorded cost he deducted on patents and franchises, $65,266 which Mr. Sangster had included in his recorded cost. There should be a corresponding reduction in the income to balance that, but he has not had time to make it. It should have been amortized but the witness has not taken it into his amortization account.

Mr. Barbour: You have testified to quite a number of items that should be added to this amortizing side of your accounts, have you not, doctor?

Dr. Bemis: I remember only one item of a little over $200,000 of unamortized debt, discount and interest. As I say, instead of doing that, it could be treated or cared for in the net income; but I think the best way would be to amortize it.

Item No. 2, assets other than plant, $39,869.46, should be either retained in capital or if taken out of capital should be returned and

$1,586 ought to remain in the capital but the witness has not carried it into the capital account.

The item of $1,138,155 he is unwilling, as yet, to carry into capital account or any other place.

The next four items, materials and supplies, bills receiv-
733 able, accounts receivable and cash, on deposit, amounting to $700,000, was, represented by one item of $260,000, which brings you down to unamortized debt, discount and expenses, $219,576 which should be either kept in capital account or amortized through earnings. That makes a total of $326,298.02.

About the item of $11,298.02, prepaid insurance, the witness was not sure. If that were to be added to capital account it would also have to be added to income. For the sake of the computation it can be easily put in. It is a very small item. I would not call it exactly a capital charge, but I will write it down here.

Turning now to page 2536, the average investment for the last seven years was given as $50,278,916. The amount that I just added of $337,526.38 is 67-100 of 1 per cent on that and would reduce that last rate of return, which was here given as 14.168 per cent by that amount, although there would be some counterbalancing changes on the other side. But that is practically a correct statement and it would, as I say, make a difference of only 2-3 of 1 per cent, and would bring it down to 13.5 per cent.

The witness assumes that they are amortized from year to year along, at the time when they were got out. It may be that they belong in the earlier period. I think the largest item, $419,000 which is 2-3 of the whole, would belong on the last 7 years, because as I recall it it appears in the table of Mr. Sangster as starting about that length of time ago.

The witness thinks that he has allowed interest on these items he has undertaken to amortize because he has written them off in the period in every case, except the last item with which he has not had time to deal. He has cut it off in the period in which it occurs. At least Mr. Sangster did that under his instructions. Therefore it was taken out in this table at the time when it should be taken out.

Mr. Barbour: Why is the item of $682,785.53 taken out in 1899?

Dr. Bemis: Mr. Sangster will have to testify why that was done then. It was the time when, according to the accounts he thought it should come out.

Mr. Barbour: Did he not take it out then because if he had taken it out sooner it would have made a deficit?

Dr. Bemis: No. He did not follow my instructions if he did that.

Mr. Barbour: Wouldn't it have made a deficit if he had done so?

Dr. Bemis: That is possible. I told him to take it out the exact year when it should be taken out.

Mr. Barbour: It was never taken out of our accounts at all.

On all of these items which he says should be amortized through profits, the company is entitled to an income and return until they were actually refunded through profits.

That has been the basis on which this table has been prepared. In other words, they did not disappear from average investment before they disappeared from net income. The same year, whatever that year was, in which Mr. Sangster took certain items out of net income, during that same year he took them out of average investment. If you will turn to the table that went into the text and which show his adjustments, and which I believe will be found in these tables which are known as B-1, C-1, and D-1, pages 2523, 2528, 2532, 2535 and 2536, you will find that to be the fact. So that if he made any mistake in taking it out, if he took it out of the wrong year, it applies both to investment and to income and therefore would tend to counterbalance itself.

Mr. Barbour: But he has never carried it in. He has never carried it into his capital account at all. You have not permitted it to be carried into capital account. You have allowed a return on what you call capital, then you say that out of excess returns these things should be amortized.

734 Dr. Bemis: I should infer that there was some misunderstanding as to the basis on which the deductions from investments were made. The deductions as shown on pages 2531-32, table D-1, show that investment had in it all of the omitted property until it was taken out from time to time in the columns that follow. Take, for example, the first line, November 8, 1883, investment at end of year $228,137.65. Equipment sold, scrapped or abandoned, $200,000. Net deduction at end of year, $200,000. Investment at end of year, as adjusted, $28,137.65.

Mr. Barbour: How do you take care of that $200,000? You could not amortize $200,000 out of an income of $28,000, could you. How did you handle that, Doctor?

Dr. Bemis: There were deficits. There was a deficit in that year. The deficits are marked with a red "R" that appear- in various places on pages 2527-2528.

Mr. Barbour: Explain how, with a deficit of $1,137.25, you are going to amortize $200,000.

Dr. Bemis: Apparently, as I now look at the column on page 2531-32, to $200,000 was taken out in 1897 from $1,864,044.32, leaving $1,684,044.32.

Mr. Barbour: Should not that ($200,000) have been bearing interest throughout that time?

Dr. Bemis: That I am not certain of. It does not seem to have been followed that way in the subsequent years. Perhaps the $200,000 does not belong in the first line in the year 1883.

Mr. Barbour: You start out with $228,000 in that year and you take off $200,000, leaving $28,137 investment. That is presumably all that we could get a net income on. That is the figure you used to get your average investment, is it not?

Dr. Bemis: It would appear from those years—I do not understand the $200,000 being taken out at that time; but after you get down to 1898 it looks clearer.

Mr. Barbour: But that was 16 years.

Dr. Bemis: From that time on it is clearer.

Mr. Barbour: It would double itself every 8 years, would it not?

Dr. Bemis: Yes. I say I do not understand how that $200,000 was taken out.

Mr. Barbour: Does not it appear to you to have been taken out erroneously?

Dr. Bemis: I do not wish to express any opinion on the first period until Mr. Sangster has returned. It may be during the first period interest was omitted, but certainly not subsequently.

Mr. Barbour: Does not that affect the integrity of all that follows?

Dr. Bemis: It would affect it if that be correct. It would affect it so far as the $200,000 enters into it for the first fifteen years.

Mr. Barbour: That would amount to nearly $800,000 in that time, compounding it, would it not?

Dr. Bemis: I would not undertake to say offhand. It would be a considerable amount, but when applied to the total for the entire thirty years, it would not be a large amount. You will notice in 1898 where there is $128,000 taken out.

Mr. Barbour: But they are the same sums that make up this $682,000, are they not, carrying them down to 1907?

735 Dr. Bemis: It is better for me to not answer just how Mr. Sangster did this, until he returns.

Mr. Barbour: It looks to you like it is wrong does it not?

Dr. Bemis: It looks as if the first period was wrong. I don't think the rest is.

Mr. Barbour: If all these items of $128,000, $34,000, $10,000 and $112,00-, the items which make up this $600,000 which appears to have been written off in 1899, was really not written off until 1907, in order to keep from showing a deficit, they should be bearing interest and we should have been having a return on them all through that period, should we not?

Dr. Bemis: Until they are written off any accounts that should be included in capital account should remain in capital account until written off out of income.

Mr. Barbour: But these items never appear to have been in capital account, do they? They are taken out of profits and not out of capital account.

Dr. Bemis: That is quite likely. I think I understand it, although I make the statement subject to correction when Mr. Sangster is able to testify, that these omitted items have never been allowed to be in investment and he takes them out of income. He took them out of income apparently in B-1 and B-2.

Mr. Barbour: And without allowing them, so far as they show any return.

Dr. Bemis: That may be true. I cannot say.

Mr. Barbour: So if your assumption is correct, the company has been deprived not only of the principal but the return and the compound on the return.

Dr. Bemis: They are not deprived of the principal because that has been provided for in this theory.

I know Mr. Sangster explained those tables in his direct testimony, for example, take this $200,000 we are speaking of. Mr.

Sangster testified on page 2572, for instance, "You will find $200,000 is the first item, November 8, 1883. This $200,000 was paid the United States Company, referred to in my report as property rights, franchises, etc." That was an item that I never believed should be in capital account at all. That is not an item that should have been taken out of investment.

Mr. Barbour: It is taken out of investment, is it not, when you reduce the investment to $28,000, although you testified that the preliminary expenses were $75,000 before the organization was ever made.

The witness knows nothing about the property rights and franchises, etc., acquired by the United States Electric Light Company in 1882 from the United States Electric Light Company of New York.

He does not know whether it was necessary to acquire and contract with the United States Electric Lighting Company of New York for the use of its appliances, patents and instruments. He knows nothing about it. He assumes to show nothing except what Mr. Sangster has in his report. And he knows nothing about that himself. If any portion of it was for physical property it should remain in recorded cost until it was abandoned or scrapped. That property acquired from Stilson Hutchins and others was included in deductions from nominal assets with no corresponding deduction from gross income because he inferred from Mr. Sangster's report that it was not physical property but franchise rights. If it was not franchise rights and was physical property then that would modify that conclusion.

He means by "franchise rights" as "rights when one company buys out another on the basis of its earnings power or franchises that it has obtained from the government or because of its nuisance value as a competitor, one company paying another for something besides its physical property."

736 Everything in the shape of rights that are now in existence—if the District of Columbia charged and received payments in return for permission to do business in the streets, such as a right to run a conduit through Pennsylvania Avenue, for instance, that would be in the nature of a franchise right that I should think should be left in capital account. But that was not the character of the franchise that was paid for here in the Hutchins case. He thinks what were called franchises there were payments by one company to another merely to get rid of it or to absorb its earning value or its income producing power.

Mr. Barbour: How do you reach that conclusion? What is your foundation for that?

Dr. Bemis: Why, the term franchise as usually used is quite distinct from physical property. Now if there were no payments to the government I assume that it was one company buying out another in order to secure an opportunity which the other company was enjoying. It was perhaps valuing its acquired business or valuing its earning power.

Mr. Barbour: You just assume that, with no foundation for the assumption other than as stated in Mr. Sangster's report.

Dr. Bemis: And as I have known was the common method of consolidation of companies.

Mr. Barbour: If Mr. Sangster is wrong you are wrong?

Dr. Bemis: I should frankly admit that if there was some physical property in there it should be taken into account.

Mr. Barbour: How do you know that the sum of $1,977,150.63 was paid for franchises, in the sense that you have used the term?

Dr. Bemis: I simply so interpreted Mr. Sangster's report.

But the witness knows nothing about the facts at all, and nothing about the value of the property except what he found in the report here. He does not know anything about the property sold, scrapped or abandoned, mentioned in the deductions from plant and property as being $388,953.85 only as it is given in the report. He does not know whether the figures are correct or not. The witness is familiar with the classification of accounts prescribed by the Interstate Commerce Commission and adopted by the Public Utilities Commission of the District of Columbia and he thinks that these accounts do not provide for the amortization of organization and promotion expenses, and that the system of accounting provides that amortization expenses shall be included in the plant and equipment account where they are actually incurred historically. Notwithstanding this, the witness has eliminated them.

737 Working Capital—Bemis.

In his table of investments, the witness has included nothing for working capital but believes that something might be added for that.

He thinks the amount allowed each year should be three per cent of the average investment for that year.

The witness testified in the Pennsylvania Telephone case that the balances necessary to be carried in banks should be taken over and allowed for in working capital because they had hundreds of small towns all over Pennsylvania and could not concentrate as they can in Washington, and where there was an occasion for something of that sort.

738 Going Value—Bemis.

Most of the expenses of developing the property and plant into a going concern are charged and properly charged and usually charged to operation when they are incurred. If they are properly operating expenses they should not be capitalized, but if on account of spending a large amount necessarily in the beginning of a business for such purposes there is not enough income left to pay a fair return on the actual investment, that should be taken into account in considering whether there is an equitable claim against the public for some sort of going value later.

Mr. Barbour: Doctor, in your testimony, on pages 432 to 435, you say that in the reproduction cost there would be some discount required, possibly, and some brokerage charges, not to meet repro-

duction costs such as this contemplates, but in view of the fact that the company has been in existence a long time, "and my understanding in such cases is that none would be allowed." Why is the fact that the company has or has not been in existence a long time a justification for your eliminating from consideration an expenditure of this kind?

Dr. Bemis: It is because the Commissions generally, and the courts, are not logically tied to the reproduction theory any more than they are to the actual cost theory, but all are elements to be taken into account, as in Smythe vs. Ames. There are many things stated there to be taken into account and given weight, but no one is necessarily to be followed. Therefore in the case of an older company it is quite common in decisions to drift away from the reproduction theory in certain things, even when generally following it, and it is so common to do that in the case of discounting of securities, and was very emphatically worked out in certain decisions of the New York Commission in the First District that I felt justified in not carrying out the full reproduction theory. If you speak as to the reproduction theory from beginning to end you would probably had to assume some discount.

Mr. Barbour: Do you know of any way by which this kind of a company or any other company could get money without paying for it, paying brokerage and discounts, expense of getting in touch with people with the money who are willing to pay it?

Dr. Bemis: Money is constantly pouring into all our utilities without any discount whatever.

Mr. Barbour: Where.

Dr. Bemis: In a great many of our utilities.

Mr. Barbour: You were never in charge of one that had to borrow money. The history of this company shows continuously that they have had to pay brokerage and discounts of various amounts.

Dr. Bemis: But there are many utilities that are not paying any discounts. Take the Cleveland Railroad Company for illustration. It has obtained money, millions of dollars, under the new franchise without a cent of discount.

739 Lands—Bemis.

Mr. Barbour: In lands, Doctor, why should not all the expenses incurred in the purchase of real estate be carried into capital account?

Dr. Bemis: The actual cost of real estate I think should be. In the estimated reproduction cost I think differently, because the Minnesota Rate Case has provided for the ignoring of overhead charges and multiples. It deliberately says so in the decision, although applying only to railroad lands there.

By "multiples" it is meant that it is quite common for utilities to pay more, perhaps one-half more—sometimes it is as much as the value of the land would be if purchased piecemeal. In other words, they are held up. If it is known that a utility is trying to

buy land in a large way, unless it is done very secretly, they are held up. Railroads, perhaps more than city utilities. But it is sometimes done with regard to city utilities, and that means in such cases in addition to legal expenses of searching the title, the study of the property by engineers to see whether it is a proper property for the purpose, the surveying of it and the costs of acquisition, securing title, searching the title, abstracting and recording it, and so forth, and there are further payments which are in the nature of a "hold-up." That is sometimes called a multiple. Sometimes you cut across the corner of a lot, more particularly for a railroad, or the corner of a farm, and you may ruin the part beyond it, cut it off from the rest of the farm, and a man may ask more for that than the value of the adjoining land.

But that decision, which I believed was based on the theory that land has risen so much in value, usually above its cost as to justify that theory, was my basis for action.

The witness recognizes the fact that such companies do have to pay more than what would be regarded as the ordinary market value for similar properties, but not always.

He believes that the recorded cost of those things should go in. He assumes that they are recorded, and they should therefore be covered in, but when it comes to reproduction cost, that should not be less than the actual cost.

Mr. Barbour: Doctor, have you given consideration to the fact that the utility, contrary to an individual, is compelled within narrow limits, at least, to locate its structures at given places, and cannot take advantage of competition?

Dr. Bemis: I think there is much in that, and anything that the company has paid for those lands I would gladly concede, including all the multiples of engineering that it has incurred as a cost.

It is his opinion, therefore, that these overheads should be included but only in the recorded cost but when it comes to the reproduction cost it should not be.

740 (Convened November 22, 1916.)

A question was asked as we adjourned yesterday relative to the overheads on land that had been taken out in my adjustment. There were total overheads of $58,447, or 13.4736 per cent. I left in one of the overheads, Legal and Organization, amounting to 3.4501 per cent. and took out the other overheads, amounting to 10.1235 per cent, or $43.914.93.

The reason I did not take out the Legal and Organization was because that was estimated on a basis of the company as a whole. No portion of it could be directly allocated to the Land—so that I did not deduct all of the overheads that nominally were put on the land in Mr. Pillsbury's distribution.

He took out all engineering and superintendence, insurance, taxes, and interest during construction and left in Legal and Organization.

I wanted to make one explanation clearing up a matter that we had up yesterday. On page 2532 of my testimony was a table known as D-1, which has a heading:

"Loss on Equipment Sold, Scrapped or Abandoned." That heading should have included the further words "Franchises, Discounts and Extraordinary Expenses." The $200,000 that appears in the first line belonged to the latter class of items—to the franchises. It was the franchise of the United States Electric Lighting Company of New York and had never been recognized by me as anything that should be written off out of income, but simply should be ignored. Therefore there was no occasion for taking that $200,000 out of income, and it explained why it was not done, and was misled for the moment by the heading of the column.

Mr. Barbour: But it never had gone into capital, had it?

Dr. Bemis: The company had the $200,000 on their books, but it represented, as the accountants reported it, payment for franchises and rights.

Mr. Barbour: You were only carrying a capital of $228,000; it was not a part of that, was it?

Dr. Bemis: Yes.

Mr. Barbour: So that under your theory this company had only $28,000 invested, other than those franchises at that time?

Dr. Bemis: Yes. There has been some subsequent testimony introduced, as I understand it, although I have not had time to look it up, that there was some physical property taken over besides this net of $28,000. I have the recollection that it was perhaps as much as $100,000, but I cannot vouch for those figures because I have not had time to look up the cross-examination of Mr. Sangster.

To that extent that $100,000 would be added to this amount, or whatever the correct figure is.

That would change the figures all down the line. That was introduced in cross-examination after this table was prepared.

Mr. Barbour: Do you know anything more about it now than you did yesterday?

741 Dr. Bemis: Yes; I say I was a little confused about that $200,000 yesterday. I had one time known it, but at the moment it had slipped my memory.

Mr. Barbour: Do you know anything more about the physical property of the United States Electric Company now than you knew yesterday when you were testifying?

Dr. Bemis: My recollection was refreshed and I remember that I had read the testimony.

Mr. Barbour: Who was it refreshed by?

Dr. Bemis: Mr. Sangster—but I had not had time to refer to the testimony and to find the page where certain vouchers were produced.

Mr. Barbour: Then if in addition to the other physical property which you say you have reason to believe may have been included or owned by the company at that time, which you specified I believe as $100,000, if this $200,000 is an additional item properly which

should have been in there, your figures will be increased by that much more.

Dr. Bemis: No. So much as there may be of physical property is in the $200,000. It would merely mean that instead of taking out all the $200,000 as I have done, that the portion would be taken out which represented franchises as distinct from physical property.

Mr. Barbour: Suppose it represented patent rights, or the privilege to use patent rights, as capital charges?

Dr. Bemis: Yes; until the patents run out it should be amortized out of income.

Mr. Barbour: You have undertaken to amortize it without giving us credit for it.

Dr. Bemis: It ought to go to increase the investment at the end of the year.

There was one further change that will make matters a little clearer in the heading of another table, in the table on page 2496. The heading would be a little more accurate if it read as follows:

"Deductions from assets that represented a real cost and which should be accompanied with corresponding deductions from gross income or should be paid out of net income."

The additions that I make in this are: "represented a real cost and which," after the word "that," and the addition at the end, "or should be paid out of net income."

There are two items in that table that were considered a part of net income, namely, interest charges, $2,962.65 and $132,500. They were simply part of the return on the investment.

On page 2435 the table correctly stated the unamortized debt, discount and expense of $219,576.56. It was included in the computation that I made yesterday as a possible amount that should be taken out of investment, and out of earnings; and also the prepaid insurance of $11,228.36. I do not think I should have admitted that, and that it is correct as I have treated it in my direct examination. Because the unamortized debt, discount and expense is on obligation of the future, is an indebtedness to be gradually wiped out in the future. It does not seem to me to be anything that should have been wiped out in the past at all.

742

I do not think you are entitled to a return on it out of past income until it is wiped out. In determining what the ratio of income is to investment in the past, you have a right to take into account the amount that you did amortize, but not this balance that remains. On page 234 of Mr. Sangster's report you will find the amount that has been amortized.

Mr. Barbour: But if it is not to be amortized out of that we are then entitled to a return on it until it is amortized, are we not?

Dr. Bemis: It is an obligation against future earnings. But in determining what your past earnings have been I think it has been properly treated here.

Mr. Barbour: Answer my question, doctor; it is an expenditure, is it not? It represents expenditure by this company?

Dr. Bemis: I am going to ask Mr. Sangster to explain that item for as I understand, it does not. But I am going to give up that particular item and let him explain it when the chance is offered.

Mr. Barbour: You cannot reply to my question then?

Dr. Bemis: Not directly, no.

Mr. Barbour: What about the item there of prepaid insurance?

Dr. Bemis: It is not customary to treat insurance as a capital charge, and I do not think it should be.

Mr. Barbour: It is working capital, is it not?

Dr. Bemis: We have allowed for working capital.

Mr. Barbour: But you have not allowed for any working capital on the original cost. You stated yesterday you had not allowed anything on working capital, and your statements have not allowed anything on working capital.

—. —. ——.

Mr. Barbour: Suppose property is given to us; should not we be entitled to have this valued?

Dr. Bemis: I should not think so. I do not think this is a matter of equity that it should be capitalized as against the public.

He does not think that cost along is determinative of value. I think that you should get as much as the recorded cost of the property now in use.

Mr. Barbour: And nothing more?

Dr. Bemis: In some cases more and that diminished by depreciation, provided in all cases you have been able to care for your depreciation out of earnings.

Mr. Barbour: Don't you recognize and have you not recognized, doctor, that a number of investments when consolidated and placed together become of more value than the cost of the parts?

Dr. Bemis: That is true as to value as a whole. There is such a thing I believe as you suggest. But I do not think it has a part in a fair value, although I consider, and stated yesterday, that it was treated as a going concern to this extent, that it was supposed that every part fitted into every other part and had a justification for its existence by reason of business, which it would not have if you treated any part as absolutely unconnected with any other. I believe the monopoly earnings of continuous right of way in a
743 street are very valuable. Of course, the same thing in a railroad right of way.

He thought that the cost of an easement through a street obtained in piecemeal was much less than its value as a whole. After it is obtained there is a new element of value of very great importance and the moment it becomes a continuous way through the city the whole is much more in that than the sum of its parts. He does not consider that is an element in fair value but it is an element of value.

He has not anywhere in his figures produced here provided for the repayment of amounts paid by the company out of capital for patent rights.

744 Fair Value—Bemis.

Mr. Barbour: Have you not tried, doctor, to substitute in writing the term "fair amount" in place of "value"?

Dr. Bemis: I think likely, although I don't remember; but I think it is quite likely that that was the case.

He does not recognize that according to its ordinary meaning, value and fair value have a significance quite distinct from fair value. I may have used the words "fair amount;" I sometimes do use fair or just amount of property, not of value, but of property. Sometimes I may have used it.

Mr. Barbour: Is not the real reason that you prefer accounting to inventory that the books as formerly kept were inaccurate and defective and did not show all real costs and to that extent they deprived the utilities of just values which have gone into their property as it now exists?

745 Dr. Bemis: No. In fact I think every dollar——

Mr. Barbour: You have answ-red my question, Doctor; you need not say anything more. On page 2504 of your testimony you say that the only proper method of ascertaining value is actual cost. Do you adhere to that?

Dr. Bemis: I have before me page 2504. I am looking for what you are quoting. Where is it?

Mr. Barbour: It is your first statement.

Mr. Syme: Let us see if he said the only method.

Dr. Bemis: Yes. I said "I think the only proper method is the actual cost." Then a little later on the same page I stated, "I will say frankly that there is some weight still given to the reproduction theory, more than I think there should be. I think it must be set up, and some weight will always be given to it. There are some questions regarding the point of whether there are omissions in this actual cost or recorded cost."

Mr. Barbour: Did you not say on page 2502, Doctor, that you thought actual cost was far more important than any other element or all other elements combined?

Dr. Bemis: Yes, I believe that.

Mr. Barbour: If that is the effect, what effect could you give to any other element if you give more to that than everything else combined?

Dr. Bemis: You will notice that I have not set up here a fair value; I have set up elements. I have expressed my opinion of the relative weight.

Mr. Barbour: That is the reason I asked you if that was your opinion as expressed on page 2502 and on page 2504, and this qualification you refer to on page 2504 is merely what other people think and not what you think about it.

Dr. Bemis: I have expressed here my view of the relative weight of two elements, but I have not given that weight expressed in any figures. I have tried to set up the two elements distinctly.

746 This is the opinion of the witness for determining fair value.

The witness also believes that the actual cost is the only proper element for determining fair value, and he is willing to add to and correct the book records, so far as it can be shown that they are wrong, and Mr. Sangster's report is subject to any corrections that you are able to find should be made, only bearing in mind that whatever the company has spent to the last dollar is on the books of the company, and what you add to cost of property you take out of operating expenses and add to profits.

He does not think that a utility is necessarily entitled to take away from the property all the results that flow from a rate prescribed by law.

Dr. Bemis: If the public has in its rates paid for you to care for depreciation which has accrued and which you have not taken care of, you have no right to turn around and charge the public interest on what they have paid you and which you have perhaps withdrawn from the capital account and distributed.

Mr. Barbour: But the public says "I will pay you so much a thousand for current, and out of it you pay for all your depreciation, your original capital and everything else, and all over and above that you keep and put in your pockets."

Dr. Bemis: I do not think that is the implied contract at all; certainly it is not the explicit contract.

747 Development of the Business—Bemis.

Is an operating expense "except possibly at the very infancy of it, during the first year or two, it might be called a capital charge the first year, but I doubt if it ever would be after that.

In a new plant just started, just being built, it is possible that they should be allowed to capitalize the cost of soliciting and canvassing, and so on, and very likely some other items which would be expected to be written off out of earnings in the more prosperous years yater.

Mr. Barbour: It seems that you think it just to leave certain capital items in the operating expense if they have been placed there, but you don't seem to be willing to allow items to remain in the construction account because they have been placed there. If it is proper and just to eliminate items from property account as shown on the books and transfer them to expense, why is it not equally just to transfer from operating expense as stated by the company the items properly chargeable to construction account.

Dr. Bemis: Yes, I think it would be proper, if it could be done properly. The supposition is that the books are correct until found faulty—we found some, and if there were others found I should accept the corrections.

The witness does not think that the actual cost of any item of property, or the property as a whole, can as matter of fact be made greater or less by methods of accounting adapted by the company, as for instance, as to cost of cable whether charged to capital or operating expense, the cost is the same. And the company is entitled to it even though not shown on the books.

He thinks that the cost of general administration in a company

should be equitably divided between construction and operating expenses so as to show the true cost of construction. He has not done that in this case because he has not had an opportunity to get any data on it further than Mr. Sangster's report was able to show it. If there are other changes to be made I have always said I was willing to consider them.

The overhead charges in the reproduction cost for engineering, for supervision and administration are frequently 5 per cent but in piecemeal extensions he does not think it would be half that.

Base prices are higher in piecemeal extensions than in wholesale, but the supervision is somewhat less. But the great difference is in interest and taxes.

Witness does not know what if any portion of the stable cost; the expense of the operation of automobiles; of supervision and inspection or construction of conduits, or the cost of supervision, inspection and installation of cables, has been included in the cost of construction and equipment, though he thinks all of these items should be represented in historical cost.

Mr. Barbour: Doctor, if you do not know what has been the practice of the company in these instances and others of a similar character, how do you know what you should or should not add for such overhead charges as appeared in the property account of the company?

Dr. Bemis: I do not know. If there are other corrections to be made I certainly believe they should be considered.

Expenses of financing are essential to the construction of the property. The construction could not any more be constructed without bricks and mortar.

I do project into the past some thoughts and ideas as to a reasonable return on investments in the past on physical property in determining going value, in determining whether they have the earnings, sufficient to amortize abandoned property, and he makes the theories retroactive as well as prospective in considering the question of going value and depreciation. Those two look back into the past naturally.

748 Mr. Barbour: Would the fact that this consolidation, recognized for a large number of years by the public authorities and the issue of stocks under it, recognized by public authorities and legislative sanction given to it by direct Congressional authority, for other public utilities to invest their stock in those stocks, and to exchange their stocks for the stocks of this Consolidated Company, have any effect on your judgment in regard to capitalization?

Dr. Bemis: I am not aware of all that is covered by your question as to subsequent actions of Congress, and I would want to reserve judgment until I had had an opportunity to investigate that fully. I do not at the present know of anything that would affect my belief that those matters should now be excluded.

Asked how under such a theory, it would be possible to bring about the consolidation of two existing profitable companies, he replied: "One company might thus unite with another and be better

off than separated without reference to the question of value in franchises; in other words, the loss by competition that might occur in cut-throat wars would cease by their union.

Mr. Barbour: How would that benefit them if you are going to cut the rate of return to physical properties?

Dr. Bemis: Their cut-throat wars might reduce their earnings below a return in the fair value, and often does.

If they are profitable companies there might still be economies in consolidation in the operating expenses, and it might be that for a short time after that consolidation, or even five years or so, there would be quite a readiness to recognize the keeping of some of those profits that came from a saving in operating expenses as one of the benefits they might be entitled to for getting together.

He believes in that in exceptional conditions. I have always held that there might be a retention for awhile of some of the economies that would result from consolidation.

He believes that the companies consolidated here have earned more than they would have earned if they had kept separate and fought each other.

The addition of $200,000 under the heading of General Charges Exhibit B 4-A, page 2634, was intended to cover possible omissions in the shape of interest during construction, engineering and supervision.

Then there was also added for possible errors and omissions at the bottom another $118,930, so there is included there in that column of Recorded Cost $318,930 not included in Mr. Sangster's report.

He thinks that interest during construction should be allowed on real estate in recorded cost but in the reproduction cost he interprets the Minnesota Rate case as denying it.

Mr. Barbour: Why should you allow interest on construction of a turbine engine and not allow it on real estate when, confessedly, the real estate is the first thing you have to buy and one of the last things you commence to use?

Dr. Bemis: The only difference is the large increase in the value of land in most utilities since its purchase. It has nothing to do with reproduction cost, but it has to do with the treatment of reproduction cost in determining fair value. The same is true of taxes during construction, and engineering and superintendence. There are expenses of this kind incurred in connection with real estate and all of these expenses are incurred.

The witness read a paper before the Annual Convention of Railroad Commissioners where he stated at some length, the different merits or demerits of the engineering method and the accounting method, and held that both had their weaknesses and both had their strong points; and that "In all this work, the services of the most capable and highly trained accountants are absolutely essential. But it is equally essential that they work under the supervision and advice of broad gauged men, of economic training and wide
749 acquaintance with methods of engineering and accounting."
* * * This stab-lizing influence of a broad gauged man of

economic training on methods of engineering and accounting is the office you are performing here?

Dr. Bemis: I do not wish to assume to myself any egotistical assertion or to make any, but I have been asked to do the best I can on work along that line.

The doctor has been so busy and so tired at night that he has not been able to estimate the value of the property of this company based on the same principles upon which he valued the property of the Baltimore company in the Tax case, but stated that it could probably be worked out very readily. He would simply take the net income for the past year and deduct from it the depreciation that Mr. Pillsbury has set up, with the slight changes he has made in his latest testimony, and that reduces that a little to conform to the ratio of the actual cost to the reproduction cost, because they do not need the same rate of depreciation exactly on a lower cost. The difference there having been found, he should deduct that. It would not be so large a difference as the total difference between the two elements.

Deduct that from net income, we will say, of 1915; capitalize the difference at 6 per cent, and that would be practically my opinion of that worth if there were no regulation.

This being the conclusion of the direct examination of Dr. Bemis, the respondent company by counsel moved to exclude the tables of figures and each and all of them, and all of the testimony of this witness based thereon, for the same reasons urged at the end of his direct examination and during the cross examination and because it appears from his testimony:

1. That the witness has no personal knowledge of the transactions of the respondent and predecessor companies as reflected on the books of the company and the entries of such transactions which he has disregarded without any sufficient reason but upon mere assumptions of other persons;
2. Because the deductions drawn by the witness in his tables of figures involve the work of an accountant, which the witness states he is not;
3. Because he draws assumptions involving engineering weight, which he is not qualified to make;
4. Because the witness merely assumes to answer questions reserved for the determination of this Commission.

which motion was overruled and an exception noted.

750 Redirect examination—Bemis:

On direct examination, witness stated he had no motive to take away from this company some element of value which he thought it was entitled to.

He has no motive to undervalue the property of this company for the purposes of this commission.

He prefers to have his value sustained by the courts.

The witness since 1889 has changed his opinions and views as he went farther into the subject of valuations and as he was more and more controlled by decisions of the courts. He was not aware of making what might be called a revolutionary change.

He has tried to take into account decisions of the United States Supreme Court and follow them.

If he was called in a state where it was purely a state matter and where the state, according to your interpretation of the laws of that state, had said that depreciation should not be considered, while his view as to its propriety, that is, as to the propriety of its consideration, might not change, yet he would be guided in reaching his conclusions and be controlled by the law in that state.

He interprets the Minnesota Rate case and the Knoxville Water case as distinctly saying that depreciation should be taken into consideration.

Since he testified in the Baltimore case of 1912, the witness has directed a valuation of the Gas Company and the Electric Light Company on property belonging to the St. Paul Gas Company, and also another electric light company in St. Paul belonging to a rival company, having Mr. Pillsbury and Mr. Sangster assosiated with him as assistants. It was then Merwick, Mitchell Peat & Company that they were working with. He was then employed by the City of Minneapolis in a gas case and employed by the City of Chicago in making an investigation.

751 Recross-examination—Bemis:

Mr. Barbour: I want to ask you if you can now do what you could not do on the first day of your cross-examination, I believe it was, and that is give us any instances where any court or tribunal has valued property as low as you have valued it?

Dr. Bemis: They have in many cases gone nearer to the reproduction than I have advised.

I cannot answer further than I did on the first cross-examination. I have not looked into the matter at all since then, and I have no further statement to add than what came out at various times in the cross-examination, at least I have nothing sufficient to warrant going into it.

752 On November 23, 1916, Mr. SANGSTER was recalled for further cross-examination.

Paving Over Conduits.

Mr. Ham: Mr. Sangster, Dr. Bemis referred on page 2462 of his testimony to certain costs of paving over conduits, ascertained by you, amounting to $209,800.20. Will you please refer to your report and state the method by which you determine that cost?

Mr. Sangster: This total cost of $209,800.20 is the aggregate of all the items in the various job cards of the Potomac Electric Power Company which were specifically referred to as for paving, together

with this item of $28,038.69, which we found was the expenditure as of December 31, 1895, in respect of re-surfacing; the total cost of the conduits having been $319,645.29. The total of $209,800.20 is, therefore, the total amount of paving so far as we could find it from the books of the Company; that he went to sources outside the company's records to ascertain those facts. He does not recollect just what was the source. He thinks it was obtained from a statement produced in connection with certain injunction proceedings.

That exclusive of $28,038.69, he looked over all if the job cards and included in this item only such items as he was able to identify as paving.

He would not say that he compared those with the original bills for paving rendered by the District of Columbia.

He went over all the job cards, whether they had reference to conduit or to other construction accounts.

He cannot be absolutely positive but he knows they referred to job cards for conduit, for cable, and, he thinks, also for overhead lines.

He is afraid that if the vouchers were produced now that he could not trace back to show how they appear on his statement.

In the Sangster report, page 174, in the first item it is stated that the total cost of the completed work is $1,071.54.

The witness does not think there is any resurfacing included in that amount that had anything to do with items other than conduits and manholes; and out of all these streets he had mentioned, covering pretty nearly every street in the city and every avenue, place and circle, he was unable to point to any case in which conduit was laid in an unpaved street.

Mr. Ham: Mr. Sangster, I am not going to argue the law with you, as an attorney as Dr. Bemis did the other day. I am going to show you that what I think is the interpretation Dr. Bemis put upon it in the elimination is that because the street was originally unpaved he eliminates 50 per cent of Mr. Pillsbury's figure of reproductive cost. He does not know anything about the street being unpaved, but derives that entirely from information contained in your report. That is why I am trying to get this before you, to show the importance of it.

Mr. Sangster: If he chooses to conclude that the lower figure shown by the original cost report indicates to him that the conduit must have been originally laid in an unpaved street, that is a matter, of course, that is in Dr. Bemis' mind.

It is not, however, anything that is in the witness' mind.

Mr. Ham: Dr. Bemis testified on page 2463 as follows:

"Now, Mr. Pillsbury's base cost of the paving over the con-
753 duits was $419,352.72 and over the surfaces $74,965.28, or a total of $494,318."

I will now ask you to refer to page 304 of Mr. Pillsbury's report, now in evidence, and state if the cost of removing pavement over the trench, base cost $41,529.56, is included in that amount.

Mr. Sangster: That is included, yes.

Mr. Ham: Does the figure of cost which Dr. Bemis compared to Mr. Pillsbury's statement of reproduction cost include a similar expenditure by the company?

Mr. Sangster: No, sir, and to that extent the comparison is in error.

The witness does not know the present practice of the company in regard to mains for street lighting circuits, as to whether they are placed in a conduit or placed in the bare ground. He knew that in some cases the company was laying the cable without conduits.

A large number of vouchers were then produced and identified by the witness and discussed with him after which the witness stated that there is no inference to be drawn from any figures contained in his report that any of these surfaces were laid over an unpaved street or sidewalk; and that he has not taken into account any of the statements of the paving work done by the company itself.

The witness had heard Dr. Bemis' testimony relative to the comparison of paving shown in the report of Mr. Pillsbury and the paving as disclosed in his own report, and said "I am prepared to say that the comparison should only be made, if at all, after giving careful consideration to such points as that which has just been brought out, and that to make the comparison without such modifications as would be carried in such consideration of it, it would not be a correct comparison.

The witness has stated the cost of the property now in existence and subdivided that cost into sixteen accounts shown on page 13 of his report which figures represent, as nearly as he could ascertain, the cost of existing physical property, subject to the qualification mentioned in the report. The items total $7,883,990.30, from which he subtracted the sum of $14,334.76, because that applied to property which was shown by the records to have been sold, and we could not distribute that money among the different sections shown in the table, which he has eliminated from the cost of the existing physical property. He has not given the details of this elimination because it is not strictly speaking, an elimination.

He could not identify just what particular pieces of property had been sold, so that he left the question open in the different tables, sectional tables, and made the deductions from the aggregate of all the tables in making his final summary.

I shall be glad to get out the details of this, and that will help to explain. I have no recollection what the items are that are included in the fourteen thousand dollar credit.

It is true that the cost of cables which appears in the accounts of the company is the original cost of the original cable installed by the United States Electric Lighting Company entirely, and to some extent true of the Potomac Electric Power Company. He does not think that all of the cable originally installed is now in use; that in twenty or thirty years most of that cable has gone out of existence. I made that assumption when I made that deduction of $50,000 from cable account.

754 Mr. Ham: I thought you made some such assumption as that. Now, what happened in the ordinary course of busi-

ness when a cable, back in 1890, did go out of existence? Wasn't it replaced by another cable and charged to Maintenance Account?

Mr. Sangster: That is the practice today.

Mr. Ham: Which, now, according to your theory, remains in the Cable Account—the cable originally installed or that installed in the replacement of that originally installed?

Mr. Syme: In what account is the cable they now have installed? In the Property Account?

Mr. Sangster: Partly in the Property Account and partly in the Maintenance Account; largely in the Plant Account.

Mr. Bowen: You do not pretend to show the cost of cable or what cable has come down to the present company from these earlier companies?

Mr. Sangster: I am not positive as to the others. I am as to the Stilson Hutchins property that I do not show. I am not positive as to the Heisler and Brush Swan and those other companies purchased by the United States Company; but whatever was shown on the Potomac Light & Power Company's balance sheet as expended for cable was taken into cable.

Mr. Ham: Is it your contention that your statement of the cost of existing property now includes the cost of wooden poles originally installed or the cost of wooden poles now in existence?

Mr. Sangster: Very largely the cost of the poles now in existence.

Mr. Ham: Now, how did you get that in your method of determining the cost of poles? Is not the plan that was followed to charge the cost of the poles when installed to Property Account, and then, as the poles were renewed from time to time, was not the cost of the second pole charged to Operating Expenses and not to Capital Account?

Mr. Sangster: In the earlier period, yes.

Mr. Ham: And at the present time?

Mr. Sangster: No. At the present time, my recollection is that the company showed on each job card the number of poles installed, feet of wire and type and other description of the various kinds of wire that were installed or strung on these poles in connection with this installation, and at the same time the company showed the poles removed, if any, and the wire taken down, if they were discarding an old line, and the net result would be to add to or deduct from the cost of the original installation the difference between that cost and the cost of the new. So that we would logically have in our investment at the end of the period the cost of the latest installation.

Mr. Ham: Do not you know that what you have now described is only the jobs that have to do with relocation or abandonment, and that it has nothing to do with current maintenance? You know very well that the company does not give a job number for renewing poles?

Mr. Sangster: For renewing one or two poles, no.

755 Mr. Ham: Then, if that is the case, which pole would be included in your cost of poles?

* * * Then, with the exception of these jobs that have to do with relocations or enlargements or betterments, is it not true that

through the Maintenance Accounts you would have to go to find the cost of the existing property which is designated generally as "Distribution Equipment"?

Mr. Sangster: Quite true; but, of course, the exception is rather large and sweeping.

There will be quite a number of instances, between the replacements and renewals which must have differed in cost from the original installations, which would be charged to Maintenance and not to Plant.

The witness made no effort to state the expenditure for renewals, in order to have the final figures show the original cost of existing property.

It is a fact known to him through his studies that the cost of copper has considerably increased.

Mr. Ham: If it is renewed, we will say, a type of cable that was less expensive or less substantial with a piece of cable that was more expensive and more substantial, and made no change in its Capital Account, the value would be changed, even without regard to the change in price of the copper at the time?

Mr. Sangster: With these assumptions, yes.

He did not follow a different method in this case than he did in that of the Washington Railway and Electric Company.

He stated in his testimony in the Washington Railway & Electric Company that he had included the expenditures for renewals in order to have his final figures show the cost of existing property; but was referring there to tracks. He knew that a lighting company has not got tracks, but it has other property that is being improved in the same way that the tracks of a railroad company are being improved. It would be impracticable to attempt to adjust them so as to show the cost of existing property.

Mr. Ham: I agree with you absolutely that it is impracticable, but at the same time I maintain that the figure you have ascertained and the way you have ascertained it does not represent the cost of existing physical property.

Mr. Sangster: It has to be modified to some extent, and he agrees to that.

He does not recollect what the item of $200,000 paid for the franchises of New York was for further than he has already stated.

Mr. Ham: Do you make any claim that that is a payment for franchises?

Mr. Sangster: Not entirely.

Mr. Ham: Do you make any claim that any portion of it is for franchises?

Mr. Sangster: Probably some part of the $200,000 was a payment for franchises.

By franchises he means—"Well, I usually have in mind payment for the earning power of the plant, etc." He thinks they had these items of equipment and read into the record.

756 Mr. Ham: If you do not know what they acquired, how do you know what is now in existence or not in existence?

Mr. Sangster: I do not know what they acquired. I have no further knowledge than what I have already given in previous testimony, and that shows that some physical property was obtained for this $200,000 of stock.

He does not remember the character of the franchises; does not know that the United States Electric Lighting Company of New York had any franchises to convey.

Mr. Ham: Do you know that they were payments for franchises—this $200,000?

Mr. Sangster: I do not recall the transaction entirely. I do not recall if "franchise" was mentioned in my working papers.

He did not examine the books of all the predecessor companies mentioned. He had one ledger, and perhaps a journal, of the Potomac Electric Power Company. The entries did not go back prior to 1895. It had been incorporated prior to that date.

His report shows that this company, or one of its predecessors, started business as far back as 1892. It seems very likely that at least the expenditures from 1892, down to the close of 1895, are in no way shown by him or taken into consideration by him. "Candidly I am at a lost to understand how the Potomac Light & Power Company could acquire the Potomas Electric Company without paying in some way for its assets and showing those assets on its books. We have a balance sheet of the purchasing company, the Potomac Light & Power Company, at 1896.

Mr. Ham: But those books are manifestly incomplete, are they not?

Mr. Sangster: Yes, I was going to say they are obviously incomplete, and seem to be, in some respects, more or less in the nature of memoranda. For instance, the balance sheet did not balance.

Mr. Ham: If that is so, you must be in equal ignorance of what expenditures were made for those three named early companies for preorganization or organization or financing or promotion up to that time?

Mr. Sangster: Yes.

Mr. Bowen: Did not the majority report state that more than $300,000 had been expended by the company at that time?

Mr. Sangster: At the date of the report, yes.

The witness was never able to examine any books or accounts of this private enterprise or whatever it was in Eckington—the Eckington Plant, so-called.

Referring to the table shown on pages 2530-33 of Dr. Bemis' testimony, as to which he said the first column of figures was made up from pages 241 to 243 of witness' report.

757 Mr. Barbour: Does that column anywhere incorporate this $200,000 that we have been talking about?

Mr. Sangster: No, sir.

Mr. Barbour: So you nowhere show an investment of that $200,000?

Mr. Sangster: No, sir.

Mr. Barbour: And it has not been returned through amortization or otherwise to the company or the stockholders?

Mr. Sangster: It has not been treated in that way; no, sir. And neither is the item included in the statement of the amount expended on plant and equipment, but it is stated separately on page 15, the third item in the continuation.

Mr. Ham: Mr. Sangster, what part, if any, did you have in the preparation of the table introduced by Dr. Bemis known as "B-1" and paged 2523-2524?

Mr. Sangster: That was prepared by one of my accountants at the request of Dr. Bemis.

The witness knows nothing about it, and his subordinate was not acting under his directions further than he gave some hints and advice as to how to carry out Dr. Bemis' instructions.

He has not verified the accuracy of each of the figures in the table.

The witness cannot swear as to the accuracy of the table and each and every part of it.

Mr. Bowen: If table "B-1" is wrong then table "C-1" is wrong likewise?

Mr. Sangster: The accuracy of table "C-1" depends upon that of "B-1."

If the accuracy of that last column in table "B-1" could be questioned, I mean could be shown to be not the fact, table "D-1" would also be inaccurate as to the distribution of the second column. So that "B-1" might be right and "D-1" wrong. That table is based upon the conclusions found in tables "C-1" and "D-1." Dr. Bemis prepared that table.

Mr. Bowen: If he states in the record that you prepared this statement, is Dr. Bemis wrong?

Mr. Sangster: I do not think Dr. Bemis would intend to state that I prepared this table.

Mr. Barbour: If these previous tables are wrong, the deductions on "E-1" are wrong?

Mr. Sangster: Yes, sir.

In my report on the Washington Railway & Electric Company, volume 1, section 10, table 1, page 2, I refer to the purchase by the Washington Railway & Electric Company of 298 shares of capital stock, and $85.72 of convertible debepture bonds, 1902, of the United States Electric Lighting Company, the cost being $68,309.79.

I promised to give you the details of the $28,000, and I shall give this reference in addition.

Mr. Ham: Mr. Sangster, I hand you a statement comprising pages 1 to 41 inclusive headed "Details of Undistributed Expenditures Recorded in Property Account," and ask you what that statement is?

758 Mr. Sangster: That is a statement showing how we determined the net difference of $38,325.71 included in the

exhibit, page 246 of the Accounting Report, more specifically as contained in the column "Plant, Sold, Scrapped, etc.," which amounts to $430,971.44, a red figure.

Mr. Ham: That statement was prepared by yourself, or under your direction?

Mr. Sangster: This statement of details of the $38,000, and odd was prepared by Mr. Botz from our working papers. The total expenditures shown on this statement are $120,965.69. Taking the credits appearing on this statement and dividing them into three groups, one in regard to miscellaneous item, one in connection with fire insurance, and one in regard to amount authorized by committee for depreciation and approved by directors, we have fire insurance credited in August, 1885, five items, four of which amount to $2,593.80 and one amounting to $495. In October, 1885, an item of $2,620. In December an item written off of $12,000. The total of these items is $25,490.20.

Then there is a small amount received in November, 1885, representing a balance recovered on net, $120, and an amount received in May, 1899, from George Bogus, for use of the property $1,249.38. If we put these in Group 2, that will make $1,369.38.

Then we have in October, 1896, Amount Authorized by Committee for Depreciation and Approved by Directors, $55,780.40.

That makes a total of $82,639.98.

Subtracting those credits from the total expenditures leaves a net amount of $38,325.71, which is the amount that appears on page 246 as one of the items of Plant Sold, Scrapped, etc.

Mr. Ham: You stated in your former testimony I believe that the property, cost of which was recorded in the books as being $120,965.69, was eliminated from Property Account because it was no longer in existence?

Mr. Sangster: That was my belief at the time I testified, that that was the intention.

Mr. Ham: Do you still hold that belief?

Mr. Sangster: No. Since returning from my last visit to Chicago I have had an opportunity to look into this whole item, and studying the working papers together with the contents of this statement, I have come to the conclusion that it never was the intention to eliminate the item, that that net total was placed in the Plant Sold, and Scrapped Column, on page 246, by mistake. The explanation of how that came about was clear to me later on, but I merely wish to state now that it was an unintentional error to place that amount in the Column of Plant Sold, etc.

Mr. Ham: You mean then that the entire $120,965.69 should be restored to Capital Account?

Mr. Sangster: Not that amount. I think that the amount which should be restored is the $120.965.69 less the $26,859.58 for credits received for insurance and other items written off. That would leave to restore $94,106.11.

Mr. Ham: Your explanation makes the cross examination very much simpler, if you have decided that these items should be re-tored to Capital Account.

Mr. Sangster: I am convinced that that was an unintentional error in bringing these final results together.

759 Mr. Ham: Mr. Sangster, with regard to the insurance and losses written off on account of fire amounting to $25,490.20, do not the entries on the books of the company show that the company not only *wroute* out of their Capital Account the entire loss on account of fire represented by insurance premiums recovered, or insurance recovered, but also the difference between the insurance recovered and the original cost of the property?

Mr. Sangster: They have written off a difference which they have described as the excess of the cost (I take it to mean) over what they did recover. They have deducted that in this Property Account.

Mr. Ham: What items in this schedule of $120,965.69 are the items against which you apply this credit of $25,490.20?

Mr. Sangster: That cannot be said. The whole statement is here, a statement of expenditures of which we could not make any distribution.

Mr. Ham: Do you contend that this $25,490.20 is properly taken as a credit against the items amounting to $120,965.69?

Mr. Sangster: The evidence on the books is not conclusive. I have so treated it.

Mr. Ham: Is not your own statement conclusive that it cannot be applied against those items? I will ask you to state what is the aggregate of the items covered by this report down to 1885?

Mr. Sangster: You mean this statement of the expenditure? Down to what date?

Mr. Ham: Down to August 1885 when the fire occurred.

Mr. Sangster: About $9,000. If you wish the exact amount I will give it.

Mr. Ham: No, that will answer. You could not apply a credit of $25,000 against a charge of $9,000?

Mr. Sangster: Of course that is not directly intended in this statement. We have found certain credits, and we have found certain expenditures, the latter ranging over a considerable period. We have been unable to distribute them in order to determine whether all of this money so expended is still represented by property now in existence. The intention was to simply treat these debts and credits together in that way, and while it is inconclusive on the one side that all the expenditures may not be in existence, it is conclusive on the other that we have not applied the credits very definitely; and I thought that the idea was to simply state the balance as undistributed more or less unexplained items.

Mr. Ham: That would be satisfactory Mr. Sangster if there was any consistency in applying this credit of $25,490.20 against this particular class of expenditure?

Mr. Sangster: Yes.

Mr. Ham: Is not the proper application of this $25,490.20 to be made against the power station equipment which was destroyed in the fire?

760 Mr. Sangster: Very true, and the proper application of the later expenditures would mean that we would have to determine how much of th-se expenditures represented property not now in existence. We feel that we have allowed a liberal or we have not done any injustice by so treating the expenditures, and we think that the credits might be treated in the same way, the idea being to be as fair to the company as we could in the circumstances. We are not claiming that we are applying this credit definitely against any definite expenditures.

Mr. Ham: Don't you know, does not the very wording of the entry show that it was a station fire, and property destroyed at our station by fire in excess of the insurance? Now, then, that limits it to a station, undoubtedly a power station.

Mr. Sangster: Yes, and probably I should say to the equipment in the station.

Mr. Ham: Yes. Then what I am getting at is, should not that $25,490.20 be applied against the loss of Plant Sold, Scrapped, etc., covered by the titles "Steam Power Equipment, Electric Power Equipment and Miscellaneous Power Plant Equipment?"

Mr. Sangster: Yes, very true; but if we were going to be so particular about placing the different items we should want to finish that and continue that through the rest of the period down to 1899, and determine how much of this expenditure represents the property not now in existence. We cannot do either.

Mr. Ham: So that you have just arbitrarily allowed this $25,570.02 to be taken as an offset against these unknown items which have not gone out of existence?

Mr. Sangster: Yes, I agree to that; that is the situation.

Mr. Ham: Mr. Sangster; the restoration of the figures to Property Account to which you have just testified as proper would necessarily change the exhibits made by Dr. Bemis?

Mr. Sangster: Yes.

Mr. Syme: They would change your totals, too?

Mr. Sangster: And they would change my own final conclusions as to the amount of money expended on the plant now in existence.

Mr. Bowen: If the Commission pleases, the admissions of the witness have greatly facilitated our cross examination of him, and we are through with him, with the exception of these two things he is yet to furnish us, namely, so much of his testimony as is based upon some injunction report, and the item of $14,000.

Mr. Sangster: And the details of the $28,038.69.

(Witness discharged Nov. 23, 1916.)

761 J. KAPPEYNE, employed by the Public Utilities Commission as an Engineer since 1915.

Graduate of the Polytechnic School, Zurich, Switzerland.

He has no degrees in this country but is familiar with the construction of power plants and structures and the costs of the same; he made an examination of the property of the electric power company located outside of the District of Columbia, mostly in Mary-

land, a little bit in Virginia. Consisted mostly of poles, wires, and a few substations. He arrived at an estimate of what was the cost of reproduction new; but did not make any estimate of depreciation.

We started with every line on which the Potomac Electric Power Company had wires and where the inventory stopped which Mr. Pillsbury had taken care of. We counted with a counting machine every pole, every cross-arm and every insulator that we found. At frequent intervals we measured the distance between five poles, and in that way figured the average distance between poles, from which we got the total le-gth of wire, to which we added a certain percentage to take care of sag.

On the substation we made a complete inventory of every apparatus that was in there as far as we could see.

There was some property of which we did not make an inventory, but which we arrived at by deducting from the total quantity given in Mr. Sangster's report the quantity given in Mr. Pillsbury's report. That applied to transformers, meters and services; also street and park lighting. He ascertained the extent of street and park lighting by the same steps, by deducting from the quantity in Mr. Sangster's report the quantity in Mr. Pillsbury's report, and applied his cost prices.

Mr. Syme: What in your judgment, in your opinion, as an engineer and as an expert, would be the reproduction cost new of property of this company outside of the District of Columbia which you have described?

Mr. Keppeyne: Including a small additional working capital, a total figure of $492,225, allowing $5,000 for working capital. This was merely an arbitrary amount that I thought ought to be added to the working capital that Mr. Pillsbury had given to take care of possible extensions outside of the District.

At the conclusion of the testimony, the company, through its counsel moved that this testimony be excluded as being not competent and not accurate, not sufficiently accurate to justify the Commission in basing any finding upon it; also upon the ground that it is based not upon this witness' investigation or judgment, but upon certain comparisons made by him between Mr. Sangster's report and Mr. Pillsbury's report.

Chairman Kutz: I do not know whether I quite understand that reason.

Mr. Barbour: I am not sure that I exactly understood the witness myself in that regard, but this is the way I understand, that for certain elements he arrived at his conclusion by deducting from sums shown in Mr. Sangster's report the sums shown in Mr. Pillsbury's report, taking the difference as his estimate of value, as I understand it.

Commissioner Newman: Oh, no.

Mr. Keppeyne: It was only as to quantities.

Mr. Barbour: Well, as to quantities then.

Commissioner Newman: He put his own estimate of value on it, as I understood it.

Chairman Kutz: With respect to what property was that method employed?

Mr. Keppeyne: That was applied to the smaller amount of property, the electric service, the electric meters and transformers, and part of street and park lighting.

762 Mr. Barbour: How much does that amount to out of the total?

Mr. Kappeyne: $147,400.

Mr. Barbour: That is more than 30 per cent of it.

Mr. Syme: I think it can go in for what it is worth. You have the property enumerated, and the record value. If the balance is below what you have out there, you have the information in your hands to supply it.

And thereupon the Commission overruled the objection and an exception was noted.

763 *Motion to Dismiss.*

After the Commission had completed the presentation of its case in chief, the respondent on November 28, 1916, submitted a motion to dismiss the proceeding on the following grounds:

1. Because the Commission has not tentatively found, nor ascertained, and no sufficient evidence which will enable the Commission to ascertain has been introduced showing the amount of money expended in the construction and equipment of the Potomac Electric Power Company, or its predecessor companies, including the amount of money expended to procure any rights of way, as contemplated by the act creating the Public Utilities Commission.

2. Because the Commission has not tentatively found, nor ascertained, and because no sufficient evidence which will enable the Commission to ascertain or find has been offered showing the amount of money it would require to secure rights of way, conduits, subways, poles, wires, switchboards, offices, works, power plants, machinery, and all other property or instrumentalities not included in the foregoing enumeration, used in or useful to the business of the Potomac Electric Power Company, as contemplated by the act creating the Public Utilities Commission.

3. Because the Commission has not tentatively found, nor ascertained, and because no sufficient evidence has been introduced which will enable the Commission to ascertain the amount of money it would require to replace all the physical property belonging to the Potomac Electric Power Company, as contemplated by the act creating the Public Utilities Commission.

4. Because the Commission has not tentatively found, nor ascertained, and because no sufficient evidence has been introduced to enable the Commission to ascertain the outstanding stocks, bonds,

debentures and evidences of indebtedness of the Potomac Electric Power Company, and the amounts respectively thereof, the date when issued, to whom issued, to whom sold, and the price paid in cash, property or labor therefor, what disposition was made of the proceeds, by whom the indebtedness is held, so far as ascertained, the amount purporting to be due thereon, the floating indebtedness of the Potomac Electric Power Company, the credits due it, and other property on hand belonging to said Potomac Electric Power Company, as contemplated by the act creating the Public Utilities Commission.

5. Because the Commission has not tentatively found, nor ascertained, and because no sufficient evidence has been introduced which will enable the Commission to ascertain the judicial or other sales of the Potomac Electric Power Company, or its predecessor companies, its property or franchises, and the amounts purporting to have been paid, and in what manner paid therefor, and the taxes paid thereon, as contemplated by the act creating the Public Utilities Commission.

6. Because the Commission has not tentatively found, nor ascertained, and no sufficient evidence has been introduced which will enable the Commission to ascertain in detail the gross and net income of the Potomac Electric Power Company from all sources, as contemplated by the act creating the Public Utilities Commission.

7. Because the Commission has not tentatively found, nor ascertained, and no sufficient evidence has been introduced which will enable the Commission to ascertain the fair value of the property of the Potomac Electric Power Company used in and useful to its business as at the present time, the date of this hearing.

8. Because the Commission has refused to permit the Washington Railway & Electric Company to become a party respondent to this proceeding, as without such intervention the property of the said Washington Railway & Electric Company cannot be properly ascertained, nor any consideration given to the sacrifices of the investors in the stock of the said Washington Railway & Electric Company, which company in turn issued and exchanged a portion of its capital stock for the stock of the Potomac Electric Power Company under the provisions of an act of Congress approved June 5, 1900, and entitled "An Act relating to certain railway corporations owning or operating street railways in the District of Columbia."

764 which motion the Commission overruled and an exception was reserved and without waiving the exception, respondent then introduced evidence touching the inquiry directed by the Commission as follows:

(Mr. Harold Almert's examination then commences.)

765 HAROLD ALMERT, after first being duly sworn, testified in substance as follows:

That he was born in the City of Chicago, June 2, 1876. He is engaged in consulting engineer work, with an office in Chicago; that his consulting work is general in character, covering all branches of consulting work concerning public utilities and industrial properties.

He was educated in the grammar schools of Chicago; took a course in manual training in the high schools of Chicago and an electrical engineering course in the National School of Electricity and the Chicago School of Applied Electricity, now known as the Lewis Institute, and the Chicago School of Applied Electricity, now known as the Armour Institute; and upon graduation he taught physics there for a year and one half. He then started working in the day time and continued his studies at night; took three years of law in the Chicago Business Law School and three years of accounting in the International Accounting Society.

In 1893, he started to work as a lineman, digging post holes, stringing wire, etc., for the Western Light and Power Company of Chicago.

In 1894 and 1895, he worked as a fireman and assistant stationary engineer in a power plant, for the same company.

Was employed as testing and research engineer in the Engineering Department of the Chicago Telephone Company in 1896 to 1898.

In 1902 he was employed as superintendent of the Cicero Light, Heat & Power Company, serving Austin, Oak Park, River Forest, Maywood and Cicero, suburbs of West Chicago. Later became manager of that company.

In 1903-1905, while still manager, his concern, combined some 16 or 18 small water powers into one large water power for use in the large car shops and works at Three Rivers, Michigan.

In 1906-9, he had a consulting engineer's office in Chicago and maintained the direction of the Cicero Light, Heat & Power Company, and the Constantine Hydraulic Company, and also took over the management of the United Gas Company and the Edison Light & Power Company of Wichita, Kansas.

During the same period he bought and owned on his own account the electric light plant at Delavan, Wisconsin; and in 1898 to 1901, was employed as electrical engineer and later as chief engineer and superintendent of the water and light department of the Lincoln Park Commission in Chicago and installed the boulevard system which was the first installation using insulation on a cable of over 10,000 volts.

In 1909 he became manager of the Department of Examinations and Reports of H. M. Byllesby & Company, of Chicago. The work there consisted in making an inventory and valuation of all of their properties of something like two hundred million dollars of electric, gas and street railway properties and water plants. Sometimes called in by the operating department of Byllesby & Company to assist in

the correction of errors in operation and seeking for greater efficiency in production.

In August, 1909, he was called in by the Electric Bond & Share Company of New York, about to organize an American Power & Light Company, to underwrite an issue of securities for the consolidation of a number of existing public utilities, to make the set up and financial plan for the consolidation and made first an inventory and valuation of the properties proposed to be consolidated; and second, recommended the plan of consolidation and the price at which the properties to be consolidated should properly be put into the consolidation.

He had all this experience during the time he was with Byllesby & Company comprising a staff of from sixty to ninety engineers, accountants and statisticians that he would send out on these various undertakings. He would supervise it and come in and write the conclusions and recommendations.

766 In September, 1909, he started for H. M. Byllesby & Company the consolidation which has since become known as the Consumers' Power Company, and the Northern States Power Company.

He purchased a large portion of this property.

He was retained by capitalists at Watertown, New York, the same year to make an investigation of a proposed hydro-electric development of some 20,000 kilowatts capacity, which they called the Twin Cities Power Company and located close to Augusta, Ga. The idea was to develop power on the Savannah River and transmit it to Savannah and the surrounding towns for the operation of the cotton mills.

In November, 1909, he made an inventory and appraisal of the gas, electric and street railway properties at Fargo, N. D. Later, on the basis of his o-n report, and faith in it, he bought those properties for H. M. Byllesby & Company.

He made similar investigation of the gas and electric properties at Mankato, Minn., and later bought those properties for H. M. Byllesby & Company.

In December, 1909, he made an investigation of the gas company at El Paso, Texas, and Jurez, Mexico; and later the property at Albert Lea, Minn., and various other places set out at length in the testimony, pages 3410 to 3415.

In 1911, he made inventories for the Toronto Electric Light Company, Ltd.

In February, 1911, he made plans for a large by-product coke oven plant to be located at South Bethlehem, Pa.

In March, 1911, he made an examination and plans for the construction of a series of hydro-electric developments on the New River, in Virginia, to serve the towns of Pulaski, Bluefield, Roanoke and the Pocahontas coal fields.

In the same year, he made an inventory and valuation for the Southern Indiana Power Company; Nashville Railway & Light Company, and the interurban line connecting Nashville and Franklin, Tennessee, and other Tennessee towns. The purchase of th-se prop-

erties were subsequently carried out and resulted in the formation of the Tennessee Power Company.

In the same year he made examinations for the Southwestern Gas & Electric Company at Shreveport, La., and Texarkana, Texas; McAlester, Oklahoma; and Excelsior Springs, Mo.; and did work for the American Power & Light Company; audited books of the street railways at Memphis and Knoxville, Tenn.; electric light and street railway and gas properties at Birmingham, Alabama; and the street railway and lighting properties at Little Rock, Arkansas, and Houston, Texas.

In June, 1911, he was retained by the Commonwealth Edison Company of Chicago, to make a complete inventory and valuation of their property for rate-making purposes, involving at that time over $75,000,000 worth of property. That examination was continued over a period of *ten* years.

In the same year he made other examinations of the property of the Duluth Edison Electric Company, of Duluth, Minn.; the Chicago Telephone Company; the Interurban Railway extending southwest from the City of Chicago, through Oak Park, Harlem and La Grange; the Equitable Light & Power Company at Lake Geneva, Wisconsin; inventories of the properties of the Northern Colorado Power Company, serving sixteen towns north of Denver and extending as far north as Cheyenne, Wyoming.

In January, 1912, he worked on a revision of his valuation for H. M. Byllesby & Company to make the inventory perpetual; and in February, 1912, made similar plans to those of the American Power & Light Company, for the consolidation of a number of properties afterwards known as the Federal Light & Traction Company, which included the properties at Tucson, Albuquerque, and a number of other western towns; and subsequently made inventories and valuations of utilities in various towns which are named in the transcript, pages 3422 to 3441.

In February, 1914, he was employed to make an inventory and valuation of the entire property of the Washington Railway and Electric Company, including the Potomac Electric Power
767 Company, and to supply the information necessary under the law of the Public Utilities Act of the District of Columbia.

He studied the law carefully, and got as near as he could the intent of Congress in the passing of this Act. As he reads Paragraph 6, separating it into various parts, the first requirement is "That the Commission shall ascertain, as soon and as nearly as practicable, the amount of money expended in the construction and equipment of every public utility, including the amount of money expended to procure any right of way * * * and any other property * * * used in or useful to the business of such public utility."

That seemed to me to be the first requirement in the first part of Paragraph 6. That, from a careful study, seemed to me, as I interpreted it, to mean the historical cost of the properties to date in cash or equivalent, regardless of the securities issued. When I say "regardless of the securities issued" there are undoubtedly, as I have

since found or expected to find, cases where property was acquired for securities. In that case it was necessary to interpret the securities in an equivalent in money, but disregarding this, it seemed to me that the first requirement of Congress there was to determine how much has actually been invested in the public utilities from their inception down to date, and is an accounting investigation.

My interpretation of the phrase "used in or useful to the business" in this case is that we must go back into the records and ascertain, *and* nearly as practicable, how much the enterprise has cost from its inception, that is, how much has been invested down to the date of the inquiry.

Most of the misunderstanding, no doubt, arises from the interpretation of the meaning of the words "used in" in this phrase "used in or useful to."

My judgment, based on long and careful consideration, and supplemented by a number of interviews with Mr. Halvord Erickson, until recently Chairman of the Wisconsin Railroad Commission, where, I believe, the phrase "used and useful" originated, means that "The cost of all the property from the very beginning of the enterprise down to the date of inquiry that was used in or useful to building up the property and business to what it is as of date of inquiry, including not only cost of all physical property but all other expenditures necessarily incurred, including development cost, deficits from operation and deficits in fair return must be ascertained before the cost of investment in the property can be determined."

The second requirement of the sixth paragraph of the Act, as I read it, is, "That the Commission shall ascertain, as soon and as nearly as practicable, * * * the amount of money it would require to secure the right of way and to replace all of the physical properties belonging to the public utility."

Observe here that the word "properties" is used, which indicates to me that Congress had in mind more than merely existing "property," and that the existing property and business is the result of the building, use and possible discarding of a number of properties, plants and equipments of the existence of many of which no physical trace is now visible.

Those framing this law had knowledge of the fact that Congress, by its own acts, had several times ordered the utilities to discard their property then in use, and required them to acquire new property, not only regardless of the remaining life in the property discarded but with the express provision, in some instances at least, that the cost of the new property should be capitalized by the issue of additional securities.

It seems to me Congress realized that the existing prop-
768 erty and business of many of the utilities are the result of enterprizes first conceived nearly two generations back, and that in building them up to what they are today, progress of the arts, ravages of time and acts of Congress itself caused much valuable property to be discarded long before the end of its useful life in order that the public might have the latest and most up to date service at all times.

Realizing also that in order to determine the cost and value of the given property and business today most careful investigation of the operations in the past are necessary in order to arrive at an equitable conclusion as to value today, Congress, therefore, directed the Commission, among other things, 3rd, "To ascertain, as nearly as practicable, the amount required to replace all the physical properties belonging to the public utility."

This view, I believe, is still further borne out by the next and fourth requirement imposed on the Commission by this paragraph 6 of the Act, which is that the Commission "shall ascertain the outstanding stock, bonds, debentures and indebtedness," etc., of each utility and the further detail requirements immediately following in the Act are for the purpose of checking the financial operations of the utilities necessarily imposed on them by virtue of having to discard properties and acquire new ones from time to time, and thereby finally determine the fairness of the present outstanding stock, bonds and other obligations.

Having ascertained the investment in the utilities, the cost of replacing all the physical properties and the amount of securities issued and outstanding, Congress next directs the Commission to ascertain the fifth requirement of this paragraph of the Act: "The Commission shall also ascertain in detail the gross and net income of the public utility from all sources. * * * In making such investigations the Commission may avail itself of any information in possession of any department of the Government of the United States or of the Commissioners of the District of Columbia."

In order that the record may be continuous, from the beginning down to date, and realizing that some of the old books and records of the utility or its predecessors may have been destroyed, the Act provides that the utility reports to Congress, the District of Columbia, etc., may all be consulted by the Commission in order that its report may be complete and also that one may be used as a check on the other.

Having ascertained the investment, and the earnings year by year, and all of the foregoing elements, Congress then for the first time empowers the Commission to determine tentatively the value of the utility.

In Paragraph 7 it directs "That the Commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof as of the time of said valuation."

Here I take it the intent is that the Commission is required to determine what value has been created by the costs, investments and earnings which they have investigated and ascertained. In no place in the preceding paragraph had value been mentioned, showing conclusively in my judgment that Congress had clearly in mind the distinction between cost and value, and that having first directed the Commission to investigate and ascertain all of the costs and earnings, now directs it to estimate or determine the value of the public utility.

Appreciating that the Commission may not be infallible, and lest

injustice be done, it directs the Commission in the next para-
769 graph, Paragraph 8, that the value determined by the Commission shall be tentative only, and "That before final determination of such value the Commission shall, after notice of not less than thirty days to the public utility, hold a public hearing as to such valuation."

Those are the elements that he has endeavored to cover by the investigation of the properties of this company.

The witness had not succeeded in completing all of the requirements as he sees them but is limited by reasons of limitations put on the work by the Commission. His engagement and understanding of the work was that the Washington Railway & Electric Company, including the Potomac Company, to all intents and purposes, was one entity, and his instructions were to treat it as such, and his beliefs are that it should be treated as such, but for the purposes of this hearing, he submitted only a partial report, that of the Potomac Electric Power Company, all of its property now owned in the District of Columbia.

It is not complete as to the Potomac Electric Power Company but is limited to all other property now owned by the Potomac Electric Power Company in the District of Columbia. It is purely a reproduction cost estimate and not a historical report of all other property now owned by the Potomac Electric Power Company in the District of Columbia and outside as well, excluding all of the Distribution System outside of the District of Columbia, but including the Great Falls Power site.

He has prepared the elements for a historical report but he could not go on record now and say that he has all that would be the complete thing that the Act requires.

In arriving at the basis of estimating the cost to reproduce new the property of the Potomac Electric Power Company located within the District of Columbia, he had to make a number of assumptions, just as Mr. Pillsbury did. It is assumed that the Company is organized and that the property is reproduced as a continuous process during a period of five years, and that the property in part is put into use and that service is started at the end of the third year; that the amount of property which the Potomac Electric Power Company owned on July 1st, 1916, is the amount that excludes all of the property outside of the District of Columbia except the Great Falls power site. The price- which were adopted were those which we believed a competent contractor, if asked to bid on the construction of such a property on July 1st, 1916, would use in making his estimate of cost, and when he says "we," he means his staff and himself.

The whole reproduction cost is dated July 1, 1916. To this end he assumed that the Engineering Department of the Company, under the directions of the officials of the company, did the engineering work, that is, determined the capacities and the location of the power and substations, the routes for distribution lines, etc. That this data was then turned over to a general contractor, or to general contractors with whom the Company contracted to construct the property and deliver as a whole an operating property to the Operating Depart-

ment of the Company ready for operation; that is, as fast as a unit of plant was completed, it was turned over to the operating department and placed in operation. This general contractor in turn sublet such portions of the work as he and the Company determined was necessary and desirable.

It was further assumed, as is the general practice in such cases,
that the general contractor furnished all the materials and
770 apparatus, and did all of the detailed engineering, and that his staff carried on the general supervision of the work, not only of his own force but also the forces of the several sub-contractors, and that the several sub-contractors were furnished with the necessary construction materials and supplies, but furnished their own organization with the necessary tools and equipment to carry out their particular portions of the work.

The detail engineering done by the general contractor is assumed to have been submitted by him to and checked up and approved or corrected by the engineering department of the Company.

The engineering department of the Company was also assumed to have inspected all materials used and the work done, and to have made out monthly progress payment estimates for the work done by the general and sub-contractors.

The Company was also assumed to have maintained a general construction accounting force and an administrative staff to look after the general business, not only covering the construction, progress and expenditures, but also for the purpose of organizing a permanent operating force which would be ready to take over and operate the units of plants when completed and to prepare them as soon as possible for regular service.

The work was divided for convenience not according to the Interstate Commerce Commission Classification, but into broad general heads of land or real estate, buildings and structures, power and sub-station equipment, transmission and distribution, general and miscellaneous equipment, and at the same time as the inventory work was carried on an examination and a study of prices.

The inventory was started in June, 1914.

Taking transmission and distribution as an example, we took a large map of the District of Columbia and sub-divided it into arbitrary districts. He used the same map used by Mr. Pillsbury and he thinks he used exactly the same arbitrary divisions of territory, but cannot say positively as to that. He adopted the same general method that Mr. Pillsbury did in dividing the city into some two hundred different subdivisions for convenience in inventorying. Field parties were organized composed generally of one observer, one recorder and one additional man to hold the end of a tape or a lineman to climb a pole to get necessary data. Those men were to carry out the primary inventory, and were supervised by the head of the division who had one principal assistant who spent most of his time in the field visiting these field parties, answering questions when difficulties arose, looking over their inventory sheets to see that the necessary care was being exercised and checking the progress, and when a given district was completed the inventory was turned over to

the head of the department, who made a personal visit for a brief spot check of the territory inventoried, and if any errors were noted a re-inventory of the territory was ordered by a different field crew from that which made the original inventory to eliminate errors—considerable of that kind of work was necessary. In a big undertaking of this kind errors will creep in, and after the reinventory a check was made in the office with the Company's records, where available, and if any large differences were there noted a still further recount was made to check the error of his record with the Company's record in order to see which was in error, and, at the same time, to correct the Company's record if found in error. Then when this particular district was completed, a notice was given to the Company of his completion of the inventory of overhead lines and wires in that district. That notice to it was to keep a record of all additions and withdrawals of that portion of the investment in that district so that later, not knowing just what the date of inventory would be, he could bring his inventory down to the last required date. So
771 in that manner he had a continuous process of inventory of the property, sections being completed at various dates, and then additions and withdrawals noted from the records kept by the company later. So that as things went on thereafter the inventory could be completed with the aid of that data.

The work was started in July, 1914, and completed in about September, 1915. It was brought down to the date shown in his report in the last few months by bringing back to Washington the heads of the departments that were engaged on the various sections of the work, and taking the records of additions and withdrawals kept by the Company, adding those to his inventory, and then making a spot check on some portions in the field to check the accuracy of it. That was done within the last 90 days.

Asked what he meant by "spot check," he replied:

In any small physical division of the territory as we have it if it is noted that there have been twelve poles added to that section since our inventory, instead of checking the entire town we simply took at random a given section in order to find if the Company's additions or withdrawals are correct, calling that a spot check. It is complete as far as that arbitrary district is concerned, but it is only one spot in the city. We took several of those to check the accuracy of the additions and withdrawals.

That inventory enabled him to ascertain the amount of property owned by the Potomac Company as of July 1st, 1916. From that inventory for the purpose of this report we eliminated the portion, as I have stated, outside of the District of Columbia.

At the same time that he started an inventory of the property an investigation of costs and prices was started, and he made several investigations along different lines to determine prices.

On page 7, volume 1, his estimate of the reproduction cost of the property is shown at $20,735,387.63. For the sake of completeness he has added one estimate of value to that, namely, the property rights in easement; that is, added to his estimate of cost in which the amount is $2,500,000, making a total of $23,235,387.63.

For convenience he has repeated that total on the next page, page

8, and rearranged it according to the Interstate Commerce Commission Classification of accounts.

This division, according to Interstate Commerce Commission Classification of accounts, is obtained purely by going through the details of the work, and wherever an amount appeared, say, as for Account No. E-300, land, it was taken out and set into that account. Throughout the work you will note that we give the Interstate Commerce Commission Classification of accounts at the right hand corner of the page. That, however, was not as convenient for my own purposes, but in order to make the report more useful we maintained both arrangements.

Mr. Almert: Reading from page 7, the Grand Summary of the Cost of Reproduction as of July 1st, 1916, the first item is Real Estate, of which the detailed summary appears on page 16, and the amount estimated for this is $830,967.44.

On page 30 appears the Detailed Summary of Buildings in the amount of $1,095,682.

On page 138 is the Detailed Summary of Power Plant Equipment amounting to $2,246,816.85.

On page 343 is the Benning Power Station Extension amounting to $300,000. We will come back to that later. There are some explanations I want to make about that.

772 On page 344 is Substation Equipment, Detailed Summary, amounting to $1,378,465.08.

On page 1043, Transmission and Distribution Equipment, amounting to $7,152,312.38.

On page 1109, Miscellaneous Property, amounting to $122,833.56.

Then on page 1218 begin the Indirect Overheads, the first one being the Engineering and Supervision and Inspection, amounting to $135,000.

On page 1220, Administration During Construction, amounting to $180,000.

Mr. Barbour: You said "indirect." Are those indirect or direct?

Mr. Almert: I beg your pardon. Those are the direct overheads. Below the line which I mentioned are the indirect overheads. These are the direct I am mentioning now.

On page 1221, Taxes During Construction, amounting to $131,271.

On page 1222, Interest During Construction, amounting to $1,791,644.

On page 1223, Preliminary Operation and Adaptation Expense, amounting to $50,000.

On page 1224, Stores and Supplies, amounting to $129,133.60.

On page 1225, Working Capital, $378,396.71.

This makes a sub-total of $15,922,522.64.

The next item on page 1217 is the Great Falls Power site, which is included here at $1,000,000, and only included here instead of up above for reasons which I will state later.

That gives a subtotal of the physical property reproduction cost, without general overheads, of $16,922,522.63.

The next item, General Overheads, on page 1227, is the legal, organization and franchise expense estimated as $262,542.

On page 1228, financing, that is the expense of negotiation only, $60,000.

On page 1230, Compensation to the Conceivers of the project or the Promoters' profit of $650,000.

On page 1231, the Preorganization Expense of $25,000.

On page 1232, Brokerage and Commissions $700,000.

On page 1233, Development Cost, $2,115,323.

This gives the total reproduction cost of $20,735,387.63, and is exclusive of the item appearing on page 1234, which I have only set out separate here for the reason that it is an estimate of value and not cost, and is the property rights and the easements amounting to $2,500,000, making a grand total of $23,235,387.63.

The tables and pages above referred to are as follows:

773 Page 7.

GRAND SUMMARY.

Cost of Reproduction as of July 1, 1916.

Page No.	Item.	Amount.
16	Real Estate	$830,967.44
30	Buildings	1,095,682.00
138	Power Plant Equipment	2,246,816.86
343	Bennings Extension	300,000.00
344	Substation Equipment	1,378,465.08
1043	Transmission and Distribution Equipment	7,152,312.38
1109	Miscellaneous Property	122,833.56
1218	Engineering, Supervision and Inspection	135,000.00
1220	Administration During Construction	180,000.00
1221	Taxes During Construction	131,271.00
1222	Interest During Construction	1,791,644.00
1223	Preliminary Operation and Adaptation	50,000.00
1224	Stores and Supplies	129,133.60
1225	Working Capital	378,396.71
		15,922,522.63
1217	Great Falls Water Power Site	1,000,000.00
	Physical Property Reproduction Cost	16,922,522.63
1227	Legal Organization and Franchise Expense	262,542.00
1228	Financing—Expense of Negotiating only	60,000.00
1230	Compensation to Conceivers	650,000.00
1231	Preorganization Expense	25,000.00
1232	Brokerage and Commission	700,000.00
1233	Development Cost	2,115,323.00
	Total Reproduction Cost	20,735,387.63
1234	Property Rights in Easements	2,500,000.00
		$23,235,387.63

Page 8.

I. C. C. Classification.

Acct. No.	Account name.	Amount.
300	Land	$830,967.44
301–335	Legal and Organization Expense	262,542.00
302	Property Rights in Easements	2,500,000.00
304	Development Cost	2,115,323.00
305	General Structures	197,121.00
306	General Equipment	97,185.01
308	Power Plant Buildings	725,973.00
309	Furnaces, Boilers and Accessories	797,295.23
310	Steam Engines and Turbines	1,053,658.67
314	Electric Generators	150,856.36
315	Accessory Electric Power Equipment	175,534.74
316	Miscellaneous Power Plant Equipment	69,471.86
774		
...	Benning Extension	300,000.00
317	Substation Buildings	172,588.00
318	Substation Equipment	1,378,465.08
319	Poles and Fixtures	158,908.43
320	Underground Conduits	2,120,963.50
321	Transmission System	850,587.84
322	Distribution System	2,167,929.55
323	Line Transformers and Devices	156,142.21
324	Electric Services	658,174.74
325	Electric Meters in Service	362,038.77
326	Electric Meter Installation	33,880.16
8	Arcs, Transformers and Meters in Stock and Stores and Supplies	172,084.89
327	Public Lighting System	589,855.84
328	Commercial Arc Lamps in Service	4,578.95
329	Commercial Glower Lamps in Service	296.75
331	Electric Tools and Implements	8,263.35
332	Electric Laboratory Equipment	17,385.29
333–A	Electric Signs	6,004.32
333–B	Working Capital	378,396.71
333–C	Preliminary Operation	50,000.00
333–D	Financing	60,000.00
333–E	Compensation to Conceivers	650,000.00
333–F	Preorganization Expense	25,000.00
333–G	Brokerage and Commissions	700,000.00
333–H	Great Falls Water Power Site	1,000,000.00
334	Engineering Supervision and Inspection	135,000.00
337	Taxes	131,271.00
338	Administration	180,000.00
339	Interest	1,791,644.00
		$23,235,387.00

Page 16.

Detail Summary.

Real Estate.

Page No.	Item.	Amount.
17	Square 259	$354,446.94
18-19	Parcel 169/9	57,508.15
20	Square 431	13,728.00
21	Square 418	12,663.60
22	Square 2986	4,447.25
23	Square 220	23,688.00
24	Square 1184	31,020.00
25	Square 2852	3,900.00
26	Square 1185	36,562.50
27	Square 1176	34,113.00
28	Square 709	31,424.00
29	Parcel 151/21	227,466.00
		$830,967.44

Page 30.

Detail Summary.

Buildings.

Page No.	Item.	Amount.
31- 44	New Office Building	$88,226.00
45- 55	New Office Building Addition & Storeroom	89,046.00
56- 59	Lamp Department Building	3,144.00
60- 65	Carpenter Shop and Oil House	6,026.00
66- 68	Warehouse and Yard	3,050.00
69	Dwellings	2,195.00
775		
70- 82	Power Plant "B"	394,757.00
83- 95	Power Plant "F"	331,216.00
96- 99	Pump and Freight House	5,434.00
100-103	Substation #1	11,569.00
104-114	Substation #2	37,523.00
115-117	Substation #5	5,761.00
118-123	Substation #10	27,588.00
124-130	Substation #12	58,462.00
131-134	Substation #13	14,049.00
135-137	Substation #14	17,636.00
	Total Buildings	$1,095,682.00

Page 138.

Detail Summary.

Power Plant Equipment.

Page No.	Item.	Amount.
139-142	Power Plant "A"	$3,941.67
143-212	Power Plant "B"	591,912.59
213-343	Power Plant "F"	1,950,963.20
	Total Power Plant Equipment	$2,546,816.86

Page 343.

Bennings Power Plant Extension.

The actual cost to July 1st, 1916, and the estimated total cost covering the extension to the Bennings Power Plant is as follows:

Item.	July 1st.	Total.
General Expense	$810.59	$3,888.59
Tools, etc	784.14	2,323.00
Preliminary Work	1,094.37	1,094.37
Foundations	11,400.64	17,088.00
Superstructure	13,709.70	25,072.00
Turbo Generator	.....	134,200.00
Condensing and auxiliary apparatus	.....	59,078.00
Steam Piping, etc	.....	14,300.00
Reactances, etc	.....	5,880.00
Wiring, etc	1,348.91	16,560.00
Miscellaneous Equipment	.....	2,970.00
Testing and Starting	.....	2,500.00
Contingencies	.....	14,000.00
Fees	4,673.42	10,000.00
Total	$33,821.76	$308,353.96
Say		$300,000.00

Page 344.

Detail Summary.

Substation Equipment.

Page No.	Item.	Amount.
345- 380	Substation #1	$123,157.36
381- 497	Substation #2	300,035.46
776		
498- 532	Substation #3	49,154.78
533- 564	Substation #5	37,890.71
565- 654	Substation #10	222,471.08
655- 683	Substation #11	40,883.29
684- 755	Substation #12	131,219.00
756- 799	Substation #13	75,992.33
800- 821	Substation #14	42,225.93
822- 939	Substation #16	230,522.45
940- 953	Bureau of Engraving & Printing Substation	20,254.11
954- 961	Fidelity Storage Substation	6,381.49
962- 972	Corby Yeast Substation	27,254.63
973- 981	American Express Substation	4,834.60
982- 998	Steel Company Substation	30,969.17
999-1015	Anacostia Substation	26,608.71
1016-1037	Tennallytown Barn Substation	7,674.80
1038-1042	Great Falls Barn Substation	935.18
	Total Substation Equipment	$1,378,465.08

Page 1043.

Detail Summary.

Transmission & Distribution Equipment.

Page No.	Item.	Amount.
1044-1047	Poles and Fixtures	$158,908.43
1048-1053	Underground Conduits	2,120,963.50
1054-1056	Transmission System	850,587.84
1057-1066	Distribution System	2,167,929.57
1067-1071	Line Transformers & Devices	156,142.21
1072-1079	Electric Services	658,174.74
1080-1086	Electric Meters in Service	362,038.73
1086	Electric Meter Installation	33,880.16
1087-1097	Public Lighting	589,855.84
1098	Arc Lamps in Stock	3,226.71
1099	Commercial Arc Lamps in Service	4,578.95
1100	Commercial Glower Lamps in Service	296.78
1101-1102	Transformers in Stock	16,748.79
1103-1107	Electric Meters in Stock	22,975.79
1108	Electric Signs	6,004.32
	Total Transmission and Distribution Equipment	$7,152,312.38

Page 1109.

Detail Summary.

Miscellaneous Property.

Page No.	Item.	Amount.
1110-1113	Stable Equipment	$47,467.75
1114-1136	Laboratory Equipment	17,385.20
1137-1142	Garage Equipment	8,423.64
1143-1160	Tools and Implements	8,263.35
1161-1216	Office Equipment	41,293.62
	Total Miscellaneous Property	$122,833.56
1217	Great Falls Water Power Site	$1,000,000.00

777 Page 1217.

Great Falls Power Site.

The Company owns an undivided two-thirds interest in a water power site located at Great Falls of the Potomac River, capable of an

ultimate development of approximately 80,000 horse power. This tract comprises about 1,000 acres, of which approximately 800 acres are mainland on the Virginia side and 200 acres are island and river bed located in Maryland.

While the property is located outside of the District of Columbia, it is clearly intended for development and use in conjunction with the Company's present steam plants for the purpose of supplying current for requirements within the District.

No attempt has been made to determine the value of this property as a water power, but it has been included merely at its cost to the Company, which is $1,000,000.00.

Page 1218.

Engineering Supervision and Inspection.

The engineering forces of the Company are organized as soon as the Company is formed, for the purpose of checking and carrying out the details outlined by the Consulting Engineers who are engaged by and report to the promoters of the project, also in making a market supply, and supervising and inspecting the work of the General Contractor's engineering forces, purchasing and inspecting materials and inspecting the work done and making and approving monthly estimates of the General and Sub-Contractors.

In order to determine definitely the capacity and types of generating stations, generating and sub-stations equipment, transmission and distribution system and to check the estimates on revenue, it is necessary for the Company's engineering force to make a complete market survey of the territory proposed to be served.

During the progress of the market survey detailed surveys of lines or routes, locations of power and sub-stations, capacities required and types of construction are determined.

The same force later outlines, checks and approves all details of the engineering work done by the General Contractor, including the approval of plans and specifications, sub-contracts, etc. In addition, the Company's engineering forces check and approve the monthly progress payment estimates for both the general and the sub-contractors.

The annual expense of engineering forces is estimated at $30,000.00 per year as follows:

(Page 1219.)

	Annual salary.
Chief Engineer	$7,500.00
Assistant to Chief Engineer	2,500.00
Electrical Engineer	2,500.00
Mechanical Engineer	2,500.00
Three Assistant Engineers	3,600.00
Chief Clerk	1,500.00
Purchasing Agent	1,800.00
Purchasing Agent's Clerical and Stenographic Force	1,800.00
Two Draftsmen	1,800.00
Clerks and Stenographers	2,400.00
Supplies and Miscellaneous Traveling Expenses	1,000.00
	$28,900.00

778 The completion of the preliminary engineering preparatory to turning the work over to a general contractor, which includes the market survey and detail surveys of transmission and distribution lines, is included in this division and a considerable part of this wrok is done prior to the formaton of the Company. On the basis of working up these details during the last six months, prior to the formation of the Company, the cost would be, approximately, $15,000.00.

When the first plant units are put into operation, it will be necessary to readjust the engineering force by taking on additional men for construction and transferring some men, or a proportionate part of their time, to operation. However, since construction progresses in an increasing amount until the entire plant is complete, it is not believed that the engineering supervision and inspection can be reduced during the construction period, and the cost of Engineering Supervision and Inspection will, therefore, average $30,000.00 per year for the four year period plus $15,000.00 for completing the market survey and other details preparatory to negotiating with bankers, or a total of $135,000.00.

Page 1220.

During all of the period from the organization of the company until completion of construction, the salaries and expenses of the executive and general officers, office clerks, stationery and printing and all other incidental office expense, except that chargeable to the engineering and operating departments, is included in this item.

Below is given an outline of the necessary organization to carry on the general corporate business aside from engineering and operation from which it will be noted that the annual expense is approximately $45,000.00 or $180,000.00 for the four year construction period.

Executive:	Annual salary.
President	$12,500.00
Vice President	6,500.00
Secretary	2,500.00
Treasurer	1,800.00
Assistant Secretary	1,500.00
Stenographic Force	4,500.00
Clerical Force	1,200.00
General:	
Chief Accountant	2,400.00
Two Bookkeepers	2,400.00
Assistant Bookkeepers and Stenographers	6,000.00
Supplies and Miscellaneous Traveling Expenses	4,000.00
	$45,400.00
Total for four years, say	$180,000.00

Page 1221.

Taxes.

While the construction period assumed for reproducing the property of the Potomac Electric Power Company is four years, each plant increment will be constructed in from one year to eighteen months and there will be an idle period before operation of possibly six months, thus making the actual time during which money is tied up and before any return is received from operation, approximately, two years.

779

Taxes in the District of Columbia are assessed on land, buildings and all outdoor equipment at a rate of $1.50 per $100.00 of value based on a two-thirds valuation.

The actual annual taxes based on the above rates and ratio of valuation amount to $69,074.00 or .658% of the direct physical property.

On the basis of eighteen months to two years to complete each part of the plant, the taxes would amount to 1% of the direct physical property cost, or, approximately, $131,271.00.

Page 1222.

Interest During Construction.

Interest during construction has been included on the basis of 6% per annum until each successive plant increment goes into operation and after crediting this account with the interest on unemployed funds it amounts to $1,791,644.00.

If we assumed that the money required to reproduce the property is secured only as expended and that the total amount is expended at a uniform rate over the construction period, the interest during construction, if money costs 6% per annum, would be $1,899,410.00, or $107,766.00 more than the amount we have included.

Page 1223.

Preliminary Operation and Adaptation Expense.

This item covers preliminary operation of the plant during construction, the testing of machinery and equipment, etc., and is applied on the assumption that as each increment is completed by the general contractor it is turned over to the Operating Department of the company which in co-operation with the Engineering Department test it out, operate and adjust it and try it out sufficiently to insure its readiness for regular operation.

This testing out and preliminary operation of individual parts to insure their coordination with the whole, it is estimated, will cost at least $50,000.00.

Page 1224.

Stores.

As the stores are daily fluctuating and the season of the year, general financial conditions, and so many other factors may affect the stores on hand, the following figures are based on the annual inventories of the Company plus the coal account and miscellaneous operating supplies such as oil, waste, etc., located at the several generating and sub-stations of the Company but which was not inventoried in detail in the field.

Due to the fact that the Company inventories are taken in November, at the end of the active construction period, the amount on hand at this time is below the average for the year.

The amount included for Stores is $129,133.60 made up as follows:

780

1913.	Inventory	$110,749.48	
1914.	Inventory	95,751.09	
1915.	Inventory	98,520.19	
		$305,020.76	
Average			$101,673.58
Coal, Oil, etc.			27,460.02
Total—Stores			$129,133.60

Page 1225.

Working Capital.

In arriving at the amount of Working Capital required to carry on the business of the Potomac Electric Power Company, three elements have been considered, viz: Operating Expenses, Construction Requirements and Reserve, or that amount necessary to maintain and keep intact the credit of the Company, care for contingencies as they arise, etc.

Based on the twelve months period ending June 30th, 1916, the operating expenses of the Company were $978,520.99. As collections are not all in by the 15th of the month following that for which service is billed, we have assumed that at least 1½ months' expenses are tied up and we have, consequently, used 1/8 of the annual operating expenses, or $122,315.12.

Constructive expenditures cannot be funded for several months after such capital additions have been completed and the cash must, therefore, be provided months in advance of the time that bonds are issued and the treasury reimbursed. Based on six months' requirements, the average Capital expenditures during the five six-months' period to June 30th, 1916, was $156,081.59.

During this period no extraordinary conditions were met and only ordinary extensions made. It is, therefore, necessary to provide a further reserve amount to care for contingencies, which is estimated at $50,000.00.

In handling the collections of the Potomac Electric Power Company, numerous banks are used to make collections. These banks act in this capacity without charging the Company for the service, but do require the maintenance of a reasonable amount constantly on deposit. If these collections were made through other channels, commissions, supervision, etc., would be paid and charged to operation. It is, therefore, reasonable to allow an amount in Working Capital, the return on which would equal such cost if handled direct by the Company or through other agencies, and this is estimated at $50,000.00, the twenty collection banks handling some $30,000.00 of collections monthly which with the balance aggregates something between $50,000.00 and $90,000.00.

1226.

The total allowance for Working Capital is, therefore,

Operating Expenses	$122,315.12
Capital Requirements	156,081.59
Contingencies	50,000.00
Collection Banks	50,000.00
Total	$378,396.71

781 Page 1227.

Legal Organization and Franchise Expense.

The incorporation of a company and the organization of its forces necessitates the expenditure of considerable sums for attorney's fees, general incorporation expense, clerk hire, printing, etc.

The expense of negotiating for and securing franchises in a case such as the Potomac Electric Power Company are undoubtedly a very large item. The cost of negotiating for franchises is a legitimate and proper expense, but owing to the fact that this is an expense incurred before incorporation of a company, it rarely appears on the books.

It is a known fact that money must be spent for the purpose of securing favorable action and for expediting action both through publicity campaigns, entertaining those whose influence would be helpful, and by indirect, and sometimes even by direct, contribu- of cash, stock and other consideration sof rassistance.

The cost of reproducing the organization of the Potomac Electric Power Company and of securing its franchises is estimated at 2% of the Direct Physical Property Cost, or $262,542.00.

Page 1228.

Financing—Expense of Negotiating Only.

When the company has been formed, franchises secured, options on real estate and right of way closed and the preliminary estimates completed, it is customary to sell an amount of stock sufficient to complete the preliminary engineering work and commence actual construction. This must be done before bankers can be interested in the financing of the project, as a whole, and when the project has passed the "paper" stage, the officers of the company start negotiations for the purpose of providing the necessary capital to complete construction and start operation.

In connection with these negotiations the company submits to the bankers their own engineering report and estimates which have been made and the cost of which are included in preorganization expense. Before the bankers will finance the project, however, they will require further technical investigations and reports by their own or independent engineers, the cost of which investigations and reports must be borne by the company.

Even after the first investigation is made at the expense of the company, the bankers may not feel inclined to furnish the money for the completion of the project and in that case other financial houses must be interested and these will also require investigations by their own engineers or engineering firms designated by them.

A complete report including cost estimates of construction and estimates of the probable return, with a forecast of earnings for

several years to come, on a project such as the Potomac Electric Power Company by a firm of engineers of known standing and ability would cost in the neighborhood of $20,000.00, and, as above stated, it is more than probable that a number of such reports for different banking houses would be required before negotiations for complete financing were closed.

1229.

When these negotiations are completed it will be necessary to have prepared a mortgage and deed of trust and this will have to be passed on by attorneys for the financial backers at the expense of company. The cost of preparation and printing would be from $5,000 to $10,000.

In addition to the above, the cost of printing of prospectuses
782 and stock certificates, engraving of bonds, advertising, postage and such items must be incurred, which for a project such as the Potomac Electric Power Company, and as evidenced by the accounts of the Company, would amount to at least $10,000.00.

The cost of negotiating and completing the financing, therefore, based on only two independent engineering reports would be $60,000.00, exclusive of any commissions, discount, etc., incurred in the marketing of securities.

Page 1230.

Compensation to the Conceivers of the Project and Promoter's Profit.

In addition to the actual out-of-pocket expenses of the conceiver or promoter of the project, the conceivers are entitled to and in practice receive compensation for the time spent by them in working the matter up, together with a profit either in cash or securities for turning the project over to the men who develope it.

The conceivers of the project may or may not be one or more of the individuals who later become identified with the development of the enterprise.

In either case, the conceivers or promoters, as above stated, are entitled to and do receive reimbursement of their out-of-pocket expense and compensation for their time, thought and foresight in selecting and developing the ground work of the situation.

As shown by the accounting investigation this item of expense is real. The compensation to the conceivers' and promoters' profit usually amounts to from 5 to 15% of the physical property cost. In this case, it has been estimmated at $650,000.00.

Page 1231.

Pre-organization Expense.

Before the company is organized to finance, construct and operate a project, an individual or group of individuals, one or more of

whom may or may not have been the conceivers of the project, must expend enough time and money to determine the merits of the project, including a preliminary survey and report on one or more locations and routes, together with estimates of cost to construct the property, estimate probable revenue, etc. The out-of-pocket expense of the individuals who go actively into the matter of investigating the project to determine whether or not it is feasible, first to themselves as business men and then from an engineering and financial standpoint, includes traveling, living and miscellaneous expenses, cost of technical advice, cost of preliminary surveys and estimates, clerk hire, office rent and sundry other expenses.

The period over which these expenses are incurred may be from one to two years and it is necessary during that time to interest additional men from time to time, to visit and consult Bankers, Attorneys and Engineers as to the possibilities of carrying the project through and the out-of-pocket expenses covering traveling, conferring, entertaining, etc., over this period would be considerable.

For a project of this size, it is estimated that at least $25,000.00 would be spent in this preliminary work as follows:

Engineering surveys, reports, estimates of construction cost, earnings, etc.	$20,000.00
Field and Miscellaneous office expenses, traveling expenses and clerk hire	5,000.00
	$25,000.00

783 Page 1232.

Brokerage and Commissions.

The financing a project the size of the Potomac Electric Power Company, it is customary to distribute the securities of the Company through a syndicate of bankers who underwrite the entire financing, and through their connections offer the securities for sale.

Brokerage and Commisssion charges made by Banking Houses for the distribution of blocks of securities of Going Concerns range from 2½% to 10%, depending on the size of the offering, development and stability of the business.

For the distribution of an amount of securities, the proceeds from the sale of which would net sufficient cash to reproduce the property and business of this Company as shown the Brokerage and Commissions, or Syndicate Manager's charges, would aggregate approximately $700,000.00.

Page 1233.

Development Cost.

The development cost or the cost of attaching the business or income to the property of the Potomac Electric Power Company, including deficits in fair return by the comparative plant method has been estimated to be 12½% of the Physical Property reproduction cost of $16,922,522.63, or $2,115,323.00.

Page 1234.

Property Rights in Easements.

The property rights in franchises and easements acquired and held thereunder, the right of the Potomac Electric Power Company to use the streets and certain portions of the public space accompanied by the actual and rightful occupancy, together with like easements or rights over private property held by the company for the purpose of erecting poles and stringing wires and the laying of underground conduits containing cables furnishing electricity to public and private establishments and residences of citizens of the City of Washington and the District of Columbia have a material value.

The franchises themselves cost money to obtain and are valuable. That cost and value was not included here. This estimate is only for the property value or value of the easements under or as a result of the ownership of these franchises. The assumption is here made that the ultimate purpose of this inquiry is fixing of rates and not condemnation or purchase of the property and business.

The Company is actually serving some 25,000 customers in the District and has installed in the streets of the District over 200 miles of conduit and over 150 miles of overhead lines.

The value of these property rights is estimated to be $2,500,000.00.

(NOTE.)—The above estimate of an element of value is submitted with my other estimates of costs. Except for this item, all other figures are costs.

784 Construction Period.

It is assumed that this reproduction would cover a period of five years.

In determining upon a period for reproduction we laid out the various parts of the property according to their need with regard to time, and then determined what time would be required in our judgment to construct the various parts and to have the various portions ready at a time when they would fit in with other parts, and that brought about a consideration of six years' total for the conception and reproduction of the property and the connection and development of the business. That six years contemplates four years of active construction; in other words, the second, third, fourth and fifth years' actual construction. There was no active construction contemplated in the first nor in the last year. The last year was the recovery of the earnings or the connection of the customers up to what the Company had on July 1st, 1916. Likewise there was some administration and engineering charges in the last year, and many in the first year, but they come on gradually in the first year and they tapered off in the last year so that for this purpose our estimates are for four years' active construction with charges for administration and engineering. There may be in here some place a place

where it may look a little bit illogical from having stated a five year construction period, but the charges you will find are on a basis of four years and the business is not considered as being fully connected and the earnings equal to that of the Company until the end of the sixth year.

What was contemplated under this construction program as having been accomplished during each of the years to the stage to which the work is assumed to have progressed can be determined by reference to the construction program which appears in my estimate of development cost. In this, by the way, several things appear, and, among other things, is a table of amounts of property that are constructed during the various years. That is a part of my report and I see no objection to including it.

Briefly the first year the purchase of the power plant sites for B. and F. and the substation sites, 1, 2, 10, 12, and 14, and the office building site were acquired. This division which I have here is according to the various classes of property, and the next land acquired is in the third year, and then some more in the fourth year.

In the second year, the general structures were completed in part. Some work on general construction and general equipment, power plant buildings and part of boilers and accessories—it may be in this lengthy table easier if I state the portions that were not included.

During the first year, without mentioning the amount, an expense incurred for preorganization, some engineering, much of the legal, organization and franchise expense, the expense of financing, the purchase of a portion of the land and some expense for administration during construction.

In the second year there was some expense for financing, a full year's estimate of cost for engineering, a full year's estimate for cost of administration during construction, some taxes during construction on account of some real estate having been purchased, and at that period we come to the expenditure for the compensation to the conceivers of the project or the promoters and also for the payment of the brokerage and commissions, and some interest during construction on account of real estate acquired.

785 The third year we are actively engaged and incurred expenditures on account of general structures and general equipment, the power plant buildings, boilers, furnaces and accessories, the steam turbines, the accessory electric power equipment, miscellaneous power plant equipment, and the substation buildings and equipment, though not all in that year, and start construction on the pole lines and fixtures and underground conduits. Those are pole lines and fixtures that would first be put into actual operation, and at the same time a portion of the Transmission and Distribution System to serve those pole lines and distribution conduits, also a part of the public lighting system; also lines to serve some of the commercial arc lamps and commercial glower lamps; and investment in tools and implements; and investment in electric laboratory equipment; and a full year's estimate of expense for engineering and for administration during construction; also taxes during construction

during this third year, and some preliminary operation and adaptation expense because at the end of the third year the first plant increment goes into operation. During this year also there is an expenditure for interest during construction.

In the fourth year, there is some additional land acquired for substations; expenditures for general equipment; for power plant buildings; boiler equipment and additional turbine equipment; electric generators and accessory electric power equipment and miscellaneous power plant equipment; also additional expenditures for substation buildings and the substation equipment; and additional expenditures for poles and fixtures, underground conduits, transmission and distribution system, line transformers and devices, electric services, electric meter and electric meter installation, for arc lamps, transformers and meter installation and additions to the public lighting system; also expenses in connection with the commercial arc lamp installation, commercial glower lamp service; additional laboratory equipment; for electric signs on customers' premises; engineering, supervision, inspection and construction; administration during construction; taxes during construction; additional expenditures for preliminary operation and adaptation for putting additiona- plant increments into service; and interest during construction.

The fifth year, the last of the actual construction period, completes the purchases in land, the general structures and general equipment; the last construction portion of the power plant buildings; boilers and equipment; turbines, electric generators; accessory electric power plant equipment and the miscellaneous power plant equipment, substation buildings are completed and the substation equipment is completed. When I say that I mean additional expenditures made during that year to complete them. Also expenditures for poles and fixtures, underground conduits, transmission and distribution system, line transformers and devices, electric services, electric meters put in service, that is, the cost of the meters themselves, and also the electric meter installation cost; for completing the installation of commercial arc lamp transformers and also an expenditure for meters to be put in stock; the completion of the public lighting system; the completion of the installation of commercial arc lamps in service and glower lamps in service; a final purchase of laboratory equipment, and the expense of installation of signs and the completion of the Bennings extension to the power plant. That detail there of later installation was not complete as of July 1st, 1916, but we have taken the general contractors' estimates as to cost of completion and included it because it is nearing completion. The expense of that is also including a full year's estimate for engineering supervision and inspection, a full year's administration during construction, taxes during construction, preliminary operation and adaptation, stores and supplies, working capital and interest during construction.

786 That outlines the complete reproduction program. I think it is not only fair but reasonable and logical, and the shortest humanly possible period without the occurrence of excessive costs. It could be shortened some, but to do so would incur costs that, in my judgment, would not be warranted.

906

In order to build up that construction program, he had not only to make an inventory of the physical properties necessary and all other expenses necessary but had to obtain prices to apply to the inventory.

787 Prices—Almert.

During the entire inventory period studies were made of unit prices of various classes of material by a study of the contracts covering materials and equipment, time studies of the actual construction work that was being carried on by the Company at the time during the progress of our inventory work. We also made actual inquiries and obtained bids from manufacturers and dealers in materials and equipment, and made a study of the wages that were being paid in the District of Columbia by the Company and by various labor organizations during the period of inventory and for earlier periods. The prices which we finally adopted, however, were not those which we found on the original contracts of the Company, nor were they exactly those shown in our time studies covering the actual construction work, neither were they the quotations received from the dealers, but were the result of a comparison of all those sources, and by working up detailed costs for various units. We did as Mr. Pillsbury did. This information was put into the hands of the heads of the departments who took it with them into the field, and with local conditions before them selected such of them or varied them to such an extent as they deemed to be necessary and right for the purpose. These costs when applied were then reviewed by me, and where any exception was noted I either went into the field with them or took up the details for the changes as noted so that they were finally approved by me. These prices which we have used, as I have stated in the beginning, were those which we believed that a competent contractor would use in estimating the cost if asked to bid on July 1st, 1916. They were corrected from time to time because of changing conditions necessarily, so that we believe that we have eliminated any abnormal factors such as the prices that would have obtained if we had asked for delivery, we will say, of a 10,000 kilowatt turbine on July 1st, 1916, in which case we might get a price from a manufacturer which was all out of reason because of congestion in his factory. We have eliminated all of those things by assuming that with this five-year construction period which we have here assumed, a contractor would be able to use reasonable and normal prices because of his ability to contract for deliveries eighteen months to two or three years hence.

He assumes the five year period as beginning July 1st 1916, and ending in 1921.

In order to eliminate complications of having a lesser property in the earlier years and to have something definite as to the amount of property we took the amount as of July 1st, 1916, and projected the construction into the future.

That would be the natural assumption and a fair and reasonable assumption in trying to get at present day prices and values.

If you assume a period of stationery prices it would not make any difference, but with the change in conditions which we have experienced in the past three or four years, and projecting the construction back instead of forward it would not give, in my judgment, anything like as true a cost of reproduction as of the time of the hearing as would the method which I have adopted.

Mr. Barbour: You are trying to get at the present prices as a basis for present value, as I understand it?

Mr. Almert: Yes, sir.

788 Chairman Kutz: The prices you assume, then, are present prices and not prices two years hence or three years hence?

Mr. Almert: No, sir. As I stated, Colonel, they are prices which I believe a reputable contractor would use in making his estimate of cost as of that date, and not on the prices which he would base a firm bid and agree to deliver the property for. But if he was to use his best judgment as to prices, and if he was to take it on a cost plus percentage basis, I do not believe he would assume to build a property for as low a price as I have if he had to make a firm bid for the total.

The firm bid perhaps might involve an assumption as to whether the market is going to be a rising or falling one in the next three or four years. I would not say that the estimate involves an assumption as to whether the market is going to rise or fall. Their assumptions were as to what would be the reasonable price on July 1st, 1916.

789 Present Prices—Almert.

Chairman Kutz: Do you believe the present prices are abnormal or normal?

Mr. Almert: There are so many things, Colonel, that enter into that that I cannot answer that for all the prices. Some things are abnormal, and some things which we considered some time ago were abnormal have reached the dignity of normal prices.

Copper has fluctuated probably more than any other one commodity, and the prices which we could have used for copper a few years ago and considered as normal prices I do not think we ever will reach again. I do not think we will ever see the dip. A study of copper in cycles, in periods of about ten year cycles, shows that it reaches a high mark and a low mark and at the completion of each cycle the valley is always higher than the one previous. If you take a forty years' study of copper and put a trend curve through there it shows prices continuously rising. That rise has been more abrupt in the last few years than previous. It happened to be low as of July 1, 1916, or for averages about that period.

We started out with a base price of copper in the earlier part of the work, but on account of the rapid changes we abandoned our base price and our prices now are based on actual quotations and are the average of a number of quotations. They are not any one quotation, but an average of a number of quotations.

The base price which we abandoned was 15.75 cents. I couldn't tell you what the base is, because the final figures are not built up as

we used to do in order to get the base price of copper, that is, so much for drawing the wire and so much for cabling it. They were actual quotations.

Take the first item here, No. 10 rubber covered wire, solid conductor. We have an average figure of $20.15 per thousand feet. I do not know what the price is now but I know it is materially higher judging from the monthly averages of copper here. On July 1, 1914, for the month it was 13.73 for lake copper in New York, and for July 1, 1916, for the month, it was 25.81 cents, or nearly double. I used 20.15 per thousand feet for the rubber covered wire.

He would be justified in saying that it would be 33⅓ per cent higher now than the witness had priced it at.

The base is nearly double, but our price is not double.

Mr. Barbour: As I understand you, Mr. Almert, you have stated that you tried to eliminate and that you have eliminated any abnormal influence or anything looking like a spot or catch price?

Mr. Almert: Yes, sir.

Commissioner Newman: Would a company constructing a plant be likely to let a contract of that kind?

Mr. Almert: I think it would, yes, for this reason, to undertake the reproduction of such a large property as this by an operating organization would simply mean that it would have to take on a construction organization which would be untried and unfitted.

790 Commissioner Newman: I did not mean whether they would build it themselves or do it by contract. Would they make a contract for five years or many separate contracts for separate jobs from time to time?

Mr. Almert: In the reproduction of this property as we have it here, I would take it they would make a general contract for the entire thing, for the reason that they would get it done within the shortest humanly possible economic period, and both for the utilization of the funds raised and to get the earnings on they would not sublet it to a great many and have the responsibility distributed. The preference would be to give it to one big responsible firm who would be responsible for the entire undertaking, and it would sublet such portions of it where it seemed to be logical to the contractor and the company.

I do not know of a situation that was reproduced just as this. I know of new properties that have come into being on a basis of this character, or perhaps a composite situation where there was a local distribution system and a main general plant was constructed and hitched onto it and done on that basis, which, I take it, is no different from this.

Asked if he knew of this method of estimating reproduction cost having been followed by any engineers of standing or by any commissions or any instances of that kind, he said he could not cite a case, but that while "The conditions I can cite are not absolutely identical, they are so close it seems to me that they would be considered practically the same. Take the conditions at Chattanooga that I recited in my experience. There the local distribution system and plant, that is, the entire property, was purchased and a contract

was let to J. G. White & Company, which company rehabilitated the entire distribution system and constructed the hydro-electric development—three of them—on the Ocoe River, and the transmission lines to serve the cities of Cleveland, Chattanooga, and various other towns. The time was specified and the compensation fixed, and they did all the engineering and delivered to the operating company a completed operating property ready for use.

I mean by "fixed" it was a cost plus percentage determined in that way. In that particular case, as I remember it, however, it was fixed to this extent that they got no profit over and above their estimate of the total cost of the work. I think there was that qualification in it. In the case of the company at Nashville, Tenn., a similar basis of construction was carried on, and I could probably think up several more that do not come to me just as this moment.

Mr. Barbour: I asked you if you knew of any instances in which the employment of a general contractor had been approved by any commission, for instance, in ascertaining the cost of reproduction?

Mr. Almert: That was the basis of the first district New York Commission in the Kings County Lighting case.

Page 231 of Whitten's Work on Valuation, section 255. I will state this qualification on that. The first district of New York Commission have assumed the reproduction of the property by the general contractor up to and including not only the transmission and distribution lines for the setting of the transformers but they have assumed the company set their own meters and ran their own services, but up to that time the general contractor delivers the completed property.

791 Referring to pages 1 and 2 of his report, the engineering, supervision and inspection there referred to is the company's engineering force as distinguished from the engineering force of the general contractor

On page 1218 of volume 4 of the report he outlines that the engineering force of the company is organized as soon as the company is formed, first for the purpose of checking and the carrying out of the details outlined by consulting engineers who are engaged by and report to the promoters of the project, and also in making the market survey and supervising and directing the work of the general contractor's force. The company's engineering department attends to the purchasing and inspecting of materials and inspecting of the work done and making and approving monthly estimates of the general and subcontractors; that is, progress estimates for payment of work as they go along; in order to determine definitely the capacity and types of the stations and substations and other equipment, and also the amount and kind of transmission and distribution system, to check estimates of revenue, and it is necessary for the company's engineering force to make a complete market survey of the territory to be served, to determine these various factors. During the progress of the market survey they make detailed surveys of lines and routes, locations of power houses and substations and the capacity and types of construction determined upon by the com-

pany's staff. The same force later outlines, checks and approved all details of the engineering work done by the general contractor, including the approval of plans and specifications, subcontracts, etc. In addition, the company's engineering force checks and approves the monthly progress payment estimates for both the general and subcontractors. The annual expense of the engineering force is estimated at $30,000 per year, and was made up on the following basis.

The staff, as outlined for the construction period, consists of a chief engineer, and the figures that I will give are the annual salaries. Chief engineer, $7,500; assistant to the chief engineer, $2,500; electrical engineer, $2,500; mechanical engineer, $2,500; three assistant engineers, combined salary, $3,600; chief clerk, $1,500; purchasing agent, $1,800; purchasing agent's clerical and stenographic force, $1,800; two draftsmen, $1,800; clerks and stenographers, $2,400; supplies, miscellaneous and traveling expenses, $1,000; which makes a total of $28,900. I have assumed a flat figure of $30,000 a year.

Mr. Pillsbury has assumed all of the work done by the company itself without a general contractor. He has assumed subcontractors on certain portions of the work, and assumes that the regular staff of the company does all the balance of the engineering work and administration of the construction. That, in my judgment, is an error in a reproduction basis. It is true that that is the way that properties of this character come into being, where they are built on a piecemeal basis, but in reproduction of an entire property in a short period, which I have assumed of five years, I do not think it would be practical to assume the regular operating organization of a company as a construction organization.

These figures, while they are figures made up by himself, before finally adopting them, I submitted them for criticism to the various heads of my departments, who are specialists in the various classes of work and have devoted a great many years to it, and it finally had their approval as well as mine, being based on my experience in connection with construction of projects of not only this character but of others, that this is a fair and reasonable amount for this portion of the work.

That he regards the expenditures for those purposes and in those amounts a necessary expense in a proper reproduction of the property and business of such a company as the Potomac Electric Power Company.

This engineering force will begin immediately on completion of the organization of the company. He has assumed that the company has had preliminary engineering reports from consulting engineers, which the company's own organization immediately adopts as their guide in the planning for the property, and their work will continue through the first year, in which no actual construction is done, but which is the year of planning, and then the actual construction is carried through the second, third, fourth and fifth years, and the company does do some engineering work in the last year, but for simplicity we included only in the four actual construction

years, as we have shown at the bottom of that page, at $30,000 a year, plus $15,000 for the market survey, which makes a total of $135,000 for engineering, supervision and inspection.

792 Prices—Almert.

Asked what elements were considered by him in getting at his prices, and whether or not those were proper elements to be considered, Mr. Almert responded:

Based upon my experience in similar projects, and the experience of my staff in similar projects, I concluded in general that the unit prices used on all the divisions of the work were made from studies of the actual labor and material costs as shown by the company's records, costs of similar labor and material and equipment in this locality as at the present time, but they are neither the company's costs nor any definite quotation, but are based on a consideration of all of the sources of information, and in arriving at them in the way that we did I think that we have eliminated any sporadic or temporary or abnormal prices, and this applies to all prices throughout as well as material.

The unit prices apply to the unit quantity of material, and include, wherever applicable, the following principal elements, of which there are three: first, material, and that is made up of (*a*) material cost; (*b*) freight; (*c*) store room expenses; (*d*) waste and breakage; and under 2 (*e*) hauling. 2 is the price of labor as distinguished from material, and under this head "labor" is (*e*) hauling; (*f*) common and skilled labor; (*g*) miscellaneous field expenses; and (*h*) field supervision.

Then under 3, subcontractors' expense and profit, and that is included on No. 2 or labor only. Material costs as above stated were arrived at by ascertaining the actual costs, and consideration of the other matters as of present day prices. When I say "present day prices" I mean as of about July 1, 1916.

The freight which entered into this calculation is based on the actual present day freight rates as classified and published by the railroad companies.

The store room expense was based on the actual experience on similar construction projects, and experience of the company under consideration, as was also the items of waste and breakage.

The store room expense varies with different classes of material. It was a percentage which was derived from studies which I mentioned, and then applied as a percentage, but there are certain items which carry no storeroom charge. For instance, construction material, such as said and gravel, that does not go through the store room. There was no charge for store room expense on such items.

Storeroom expense applied to the material cost only, in the cases where it was applied. The same method was used in regard to waste and brokerage. The same method applied and the same base used, and those percentages varied with the different kinds of material.

The report does not show the percentage allowed as to each class of material in that form. They are observed in the unit prices.

The further overhead charges show, but not the percentage of storeroom charges.

As shown in the report, we start with the labor and material cost in the first column. That is the unit price, and that includes these several elements that I have recited here on page 3.

Mr. Barbour: How was the expense of hauling applicable to each item of your inventory ascertained?

Mr. Almert: It so happened we adopted the same basis which Mr. Pillsbury's testimony shows, that the city was laid out into zones, and the distances from yards or from freight stations from which material would have to be hauled was ascertained and the weights determined and the haulage then, from a study of the costs of hauling in the District of Columbia. To ascertain the cost of common and skilled labor which went into each of these various characters of material, he studied the records of the company and the wages of common and skilled labor by calling on the labor unions, determining the scales, and by conference with contractors as to the wages paid, both currently and in the past.

Miscellaneous field expense includes the transportation of men, the lost time, timekeeping, clerical assistants, based on actual experience of the company and also upon our own experience in connection with construction of similar projects that have been investigated.

793 They were determined by the heads of the departments for the various subdivisions of the work and reported to him and corrected when he believed that was desired or necessary. This field expense was ascertained by percentage and applied as a percentage; a percentage in past experience, derived from actual usage and applied to the hypothetical case.

Field supervision includes the department and subforeman's salary, and the expenses, and is also based on the actual experience and study of the costs of the company under consideration and applied in percentages in the same method as indicated for the miscellaneous field expense.

We worked up cost studies on all classes of work, which were used as a guide, and these were taken by the heads of the departments into the field, and I believe our method was identical with Mr. Pillsbury's, that they are not the exact prices as shown by our studies, but varied according to local conditions and are applied by heads of departments. By the use of these various elements he derived the actual cost of the material and the labor to subcontractor.

794 Subcontractor's Expense and Profit—Almert.

The subcontractor's expense and profit is applied to labor only. The subcontractor is allowed no expense or profit on materials, since all the materials are furnished him by the general contractor; but it does include the expense of his organization and his supply of tools and implements to be used on his portion of the work, and a reasonable profit to him, which has been added, as stated, on the labor

only, and as it was used on such things as buildings, excavation, installing conduit, etc. That amounts to 15 per cent on labor. That was a level percentage, applied to all costs of labor wherever a subcontractor was used.

These figures as we have gone over them when properly applied to the inventory items, give the cost to the contractor of the materials and labor in the various inventory items, but they do not represent the total costs of these items to the company.

There are many elements, the first group of which are the direct overhead charges, and consist of omissions and contingencies, the detail engineering, which is done by the general contractor, the insurance and the general contractor's fee. The overhead charges are divided into sections, these being what I have termed the direct overhead charges, because they are applicable to specific parts of property. Others which cannot be so applied are later applied, but these are those which have been charged directly to specific parts of property.

795 Omissions and Contingencies—Almert.

The omissions and contingencies have been determined by the character of the work, its magnitude, and cover the costs growing out of changes due to unforeseen obstacles as the work progresses, financial panics, inclement weather, causing losses of time and consequent delays, failure of contractors, strikes, accidents, damage and other elements of cost which experience has shown must be allowed for over and above those costs which can be specifically enumerated.

Just as a brief example, attention has been directed to what we are all familiar with here, and that is the changes in the foundations of the office building. The plans show one condition and the actual condition is different, and one having simply the plans and seeing the building without investigation of other elements would not get that and would have an omission there. The human element is another one that has to be taken into consideration, and concealed matters or changes that have occurred and are not now visible. In the course of the work as it progressed it was found necessary, for one reason or other, to change it, as the conditions changed, and that is a contingency which we do not find in an observation of today; and in making an inventory of an underground system it is not apparent what obstructions have to be removed or overcome or gotten around, and items of that character. It is here stated in the report, on page 5, that they have been included at from 3½ to 7½ per cent. When this paragraph was written up it was in connection with the report of the company as a whole, that is, the Washington Railway and Electric Company, and I want to correct here that item, by saying that it varies from nothing to 5 per cent in the Potomac Electric Power Company. The items such as switchboards and substation equipment, which take up a very bulky part of this report, there is no allowance for omissions and contingencies. On the buildings, such as pump and freight house, for example, there is no

allowance for omissions and contingencies, while on buildings, very small ones of that character, it runs from 2 per cent to 5 per cent.

It should be from nothing to 5 per cent.

This percentage is a level percentage applied all the way through but at varying percentages governed by the character of the property and the greater or less liability that items of this kind have to be allowed for, and the detail under each subheading shows what percentages have been applied to each case. I just happened to turn here to page 59, general structures. You will see there the second item, omissions and contingencies, 3 per cent, and that is for an item in the I. C. C. Account No. E-305 under the subject of "structures."

796 Contractor's Percentage—Almert.

Chairman Kutz: If the general contractor assumes no risk is not the 10 per cent profit rather large?

Mr. Almert: It is not 10 per cent profit, Colonel. All the expense of his organization comes out of that 10 per cent. He does all the detail engineering and supervises the construction as well, and has his expense to take out of that 10 per cent, subletting only certain portions of the work to the subcontractors, so that he has a large expense in there as well as his profit to come out of that 10 per cent.

This item is a part of the cost of construction.

In addition to the daily engineering, the general contractor has to have his complete organization, and has his overhead expense and that sort of thing to come out of that 10 per cent.

The general contractor's organization is not outlined in the report.

The 10 per cent is based on experience on undertakings of this character. It is a very customary charge. In some of these cases that I have recited here this morning that was just the charge, and it is very customary in such firms as Stone & Webster and J. G. White & Company, and a number of others, to charge cost plus 10 per cent.

Chairman Kutz: Is it customary in doing work by this method to invite bids, in which the bidders are called on to specify the per cent at which they will undertake the work?

Mr. Almert: As a matter of fact in a great many cases one or two or more general contractors are consulted before anything of that kind, but I don't think the company would go through the formality, the same as a municipality does, of written bids, to be opened upon a certain day and let the work to the lowest bidder.

I don't think that is the general practice and is not done in private corporation work.

I don't think for the construction of the entire property, such as this. It frequently is done, so far as the letting of the work for an individual building or something of that character is concerned, but I don't think of a single case at this moment where a very large undertaking has been done on that basis. There are so many things to be taken into consideration which might be more necessary to the company than a difference of a fraction of 1 per cent or maybe 1 per cent in the total cost, and that is the past experience with one con-

tractor as compared with another, his financial reliability, his policies, and that sort of thing. I don't think that this 10 per cent fee for his cost and profit is anything unusual at all.

It covers not only his overheads and his organization, but also for the detail engineering work thal he does.

I have a separate item for detail engineering. It is his overhead expense and general.

797 Omissions and Contingencies—Almert.

If a general contractor were bidding for this work at a sum certain he would include an estimate for omissions and contingencies.

I think they are very reasonable allowances for omissions and contingencies. The item of error in inventory alone, even with the precautions that I have adopted here, I think would be safely 3 per cent, and on the property as a whole, leaving nothing, in some cases, for contingencies, and there must be large amounts.

There are no allowances for omissions and contingencies.

798 Detail Engineering and Architect's Fees—Almert.

Detail Engineering and Architect's fees are included at from 3 to 5 per cent on that basis that the work done by the general contractor was carried out, and he did the detail engineering work; in other words, that the engineering force of the company outlined the work and checked the results, but that the general contractor and architect made all the detail plans and did all the engineering work. I have a case in mind right now that I had to investigate recently, in examining the books of a company on which, in round numbers, two and a half million dollars worth of this class of work was done over a period of three years, and the charges for detail engineering amounted to 8 per cent. That was in Illinois last year, an investigation that I made there actually from the books.

The case I spoke of was an identical class of property to this. There were some items to which the percentage is not applied. For example, on real estate.

799 Insurance—Almert.

Insurance during construction was upon the current rates for employers and public liability insurance and insurance on payrolls, fire insurance on such materials as would ordinarily be insured, and fire and damage insurance on equipment such as is usually charged for by the manufacturer, all municipal fees and permits, and the contractor's bond and fidelity insurance.

The insurance was figured by estimating the labor and material costs for different portions of the work and applying the rates to the resulting figures, which showed from 1 to 1½ per cent of the total cost. Now in the Stockton Gas & Electric case which I recited this morning my connection with, I had occasion there to go into that item thoroughly, and on the reconstruction work, and on the new

work there I determined the total amount cash cost of improvements and the amount paid to the insurance companies for insurance, and there it amounted to just 1½ per cent.

This case was before the California Commission.

These, as well as the direct overheads, are real bona fide expenses which have to be incurred.

Take another example. The General Electric Company, from which much of this equipment and apparatus is purchased, include as part of the sale and in addition to the purchase price a charge of one-quarter of 1 per cent for insurance, based on 90 days, and that is the minimum amount. If your apparatus goes in in a month you still pay that one-quarter of 1 per cent, but if it takes longer than that to install they bill you an additional charge for insurance.

Now, for instance, that element of insurance, on page 44, for example, general office building, Interstate Commerce Commission Account E-305, to the total of $79,829. For that building are these various direct overheads, and among them you will note 1½ per cent for insurance. So that each inventory head itself, when it is extended into cost, the final item carries that overhead—these directly distributed overheads.

It is the opinion of the witness that that is a fair and a just estimate to cover insurance, and includes employers, and public liability insurance, insurance on payroll, fire insurance on certain classes of material, etc.

800 General Contractor's Fees—Almert.

I have not stated just what items that is supposed to include. I have stated them in general, and I thought it would be better to prepare a detailed table, such as the Commissioner has asked for, which I think would be more satisfactory and show it up more specifically.

The percentage is a level percentage applied all the way through, on the assumption that an operating organization, such as the company will have, could not reproduce such a property as this in a period here estimated, and that if it undertook to do so the getting together of an entire organization would be such that the errors and delays and costs would be such that it would not profit them, but it would pay them to pay for a trained organization fitted and ready to do this class of work, and in his opinion as an engineer it would be more economical for the company to have the work done this way and to pay a general contractor this fee and percentage rather than to undertake to build up the necessary organization to do it itself.

In his judgment as an engineer and in the light of his experience, observation and studies, in such matters, the allowance is a fair and reasonable one which would have to be incurred by any company in reproducing such a property as this, and is shown by many cases to which Dr. Bemis referred allowances were made. In the Des Moines Water case 10.8 per cent was allowed for this item. In the Kings County Lighting case 10 per cent, and in the Metropolitan

Street Railway case, New York, 10 per cent. This is a customary item in undertakings of this kind and no allowance for this or the equivalent work is allowed anywhere else in this report than under this heading.

Up to this point we have been dealing with merely the prices to be paid for the various elements of property, and I get the quantity of the property to apply those prices and percentages to from the inventory, and to get that the property was subdivided into real estate, buildings, power plant and substation equipment, transmission and distribution, and miscellaneous property.

The combined summary of the direct cost of all these elements of physical property is stated on page 9. They are there aggregated at $13,127,077.32, exclusive of the direct overhead. These elements have to be ascertained separately because the overheads are applied to them in varying percentages and on various amounts.

That figure includes the directly distributed overheads as distinct from the direct overhead. The balance of the direct overheads that are applied generally cannot be distributed in the various classes of property, appear from engineering and supervision down to and including working capital. So that the first seven items on page 7 have the directly distributed overheads in them, and the balance of those items below are the direct overheads which are applied generally on classes of property above. Then, as I stated, on page 9, is a summary of the reproduction cost of the physical property, exclusive of the direct overhead applied generally, and the general overheads, and these summaries are again repeated from page 9 to page 15, inclusive.

801 Real Estate—Almert.

The real estate is shown on page 16 of the report and totals $830,967.44.

The witness did not make the estimates of the reproduction cost of those various items of real estate.

He enlisted the assistance of one of the directors of the company who was familiar with real estate men, and after the selection of two of them, instead of negotiating with them personally, he had one of the directors make the engagement with them, and as soon as that was completed he dealt directly with them and had them make inventory or appraisal from the lists which he furnished them, and he has embodied their appraisal here.

These real estate men were Mr. Beall and Mr. Dulany.

The witness just adopted their work and they have already testified before the Commission as to their valuation.

The difference between this inventory and valuation and that of Mr. Pillsbury, so far as real estate is concerned, is in that Mr. Pillsbury, from his instructions, left out the last item, parcel No. 151/21, which is the Graceland Cemetery tract, amounting, in our valuation, to $227,466. With that single exception the other variations are practically in price only. And that amount is carried into cost of reproduction at the aggregate figure shown first on page 10 and later

on page 16, and the details following that on pages 16 to 29, inclusive.

802 Buildings—Almert.

Then on page 30 to 137 he takes up the buildings. Mr. Belcher was in charge of that.

Mr. Belcher was a graduate of the University of Maine as civil engineer, and took the degree of Master of Arts at Harvard. Then he had five years' experience immediately after that with the American Bridge Company at their plants at Pittsburgh and Berlin, Connecticut, and then he was draftsman and checker on design for mill buildings and power houses, and highway and railway bridges and various structures built by that company. He was with F. G. Gilbraith, the efficiency engineer on buildings and supervision of construction of buildings, and in 1906 he was employed by J. G. White & Company on building construction, and was engineer here on the construction of the Bennings plant—on that structure. He designed that Bennings plant, the building, while employed by J. G. White & Company. Later he was engaged for a period of over 3 years with the H. M. Byllesby & Company, in charge of their drafting room, and also devoting his time to structural design. He worked for the witness on the Atlas Portland Cement appraisal, and was with him almost continuously up until the time of the completion of that work.

He was a thoroughly competent man.

He made the designs and executed and carried to satisfactory conclusion the construction of a large number of structures, both steel and concrete.

His inventory, was made, in general, as already outlined. It was made by an actual count and measurement in the field of the structures, separating them into their various elements of brick, concrete, steel, etc. And they consulted the plans and specifications secured from the engineers or architects who designed them, or from the files of the company, and also from an explanation of other data, to determine whether there was any departing from those plans.

Witness made semi-monthly trips to Washington during the entire progress of the work for over two years, and got personally in touch with each of the department heads, going out into the field, reviewing the work as it progressed, conferring with them in passing on the method to be adopted in computing quantities and in arriving at the prices and deciding troublesome questions as they came up.

If there were any additions to buildings between the date of the completion and the original fill work and July 1, 1916, they were taken from the books of the company as to the amounts. In that particular case they used the amount actually paid. It amounted to very little.

The new office building, or the new addition to the office building, was the only notable addition.

On the matter of additions to other parts, we notified the company when the inventory was completed of a given section, such as trans-

mission and distribution, and it was intended there that the additions would be kept and the withdrawals kept so that we could allocate them to the individual parts, and I so testified this morning. There was this one change I wanted to correct in my statement this morning. The company did not keep it in such detail as we expected they would, so that it was not in all parts possible to allocate it to a given district, but no change in the correctness of the totals. For instance, we have a certain number of 35 foot poles with 8 inch tops. We have the total that has been installed from the time our inventory has been completed until the completion of the reckoning of our inventory, so that our total was always correct, but it
803 was not always possible to say that 7 of those went into District 201 and 8 into some other district.

For those additions that came along in the months between the completion of the inventory in 1915, and the first of July, 1916, we had determined on prices per unit for the various parts, and then made the additions at those same prices.

After the inventory was all completed and the pricing was to be done, the studies which we had worked up on unit prices were taken into the field, so as to be on the ground and apply them. That was not true as to the transmission and distribution system. The head of the department there did not run all over town with his prices and apply them. I was thinking especially of the prices for brick and things of that nature. We have some of the buildings here that have fancy brick, and some that had straight runs of brick, and there is some variation in the class of work.

Chairman Kutz: I understood you to say that the general prices were applied in the field, as Mr. Pillsbury applied them, in the same general manner, by the people compiling the inventory.

Mr. Almert: No; by the heads of the various departments. The inventory men themselves did not apply any prices. Common brick, for example, laid in one job is at one price, and because of difference in condition, more difficult or easier, it will be different in another building. The head of the department had his price study, and in considering each building he went on the scene and made his observations before he definitely decided which one to use. If he found an extreme variation from the price studies, the matter was referred to me, and I took the matter up with them.

Chairman Kutz: Is it true that this property was originally priced as of July 1, 1915, and subsequently priced as of July 1, 1916?

Mr. Almert: We never completed any valuation until this valuation. We applied in parts prices to the inventory here and there, working along as we could; but not knowing definitely the date the hearing was to be, we left open those things that were fluctuating badly, and applied such things as were quite stationary, for the sake of progress; to get something done.

Those that were fluctuating were left open because we did not know but what they would have to be altered to be a fair price at the date of the hearing.

Labor prices, for example, have not materially changed here; and on such violent things as copper, for example, my labor prices

have not changed from what I originally set them up. I changed the price of copper, but not of the labor for that particular class of work. Neither have I changed my work on building labor, masons, carpenters and things of that character. It is true they are higher now than what I have included, but not enough, in my judgment, to make it necessary to go back and revise them. On such things as that—for instance, labor—from what little checking I saw of Mr. Pillsbury's, we are right together on such items.

Mr. Barbour: And the buildings, as I understand it, are shown in detail, with the quantities and prices for each item in each building, in your report, from pages 30 to 137?

Mr. Almert: Much detail is there given. I will not say that all detail is there given; but first after the description comes
804 the quantity, and then comes the unit price, and the details which go to make up that unit price are not set out in each and every one of those cases.

The price applied to the quantity is shown and each building is shown, and the total cost of material and labor in each building is summarized at the end of the building, and then the directly distributed overheads; and that total in page 30, $1,095,682, is carried over on to page 7. That includes all these directly distributed overheads.

While we are on the matter of buildings, I have a curve, which I made up, and which I think is very indicative of conditions as affecting building material prices and labor—particularly materials. I obtained from the District the amounts of permits issued for the construction of buildings in the District of Columbia by months from 1911 to 1916, and it shows that the low point here is $750,000 a month, and the high point is $1,250,000 a month. Graphically, you will see that in 1913 and 1914 were the low periods; and as the lumberman whose place is down across from the Company's office building—Mr. Pierce. He told me that he was selling lumber during this period at prices lower than he had paid for it. That was the low ebb of construction period, and the price for material such as lumber was very much lower than the normal price at that time.

This curve is shown as "Almert Exhibit No. 1" between pages 3542 and 3543 of the transcript.

Chairman Kutz: That does not mean that the curve in the prices of lumber would necessarily follow the curve in the amount of building; does it?

Mr. Almert: No; but in general I think the same thing follows, Colonel, as I found in this case. I went to one of the publications that follow the metal market very closely and who dig into this. I said that, "I see this similarity, but I have not yet a satisfactory explanation of why the price goes up with the demand," and this publisher said, "Do not quote me on the proposition. I have looked into it; but there is nothing else except that when the prices are low you can rely on it that there is no construction and no buyers. As soon as they begin to buy, the prices go up."

I think there is this very important point to take into consideration, too, from a study of just that condition: that, in connection

with public utilities, their big work, the major portion of their construction, is done at a time when, and because of the fact that, money is available for their purposes. Now, when the market is such that they can obtain money from the selling of securities, it becomes general. It does not come to one company now and another at another time. The market is such that public utilities' securities have a ready market. They come into the market about the same time. That creates a demand for material. The price goes up, which means that the major portion of the materials used in public utilities is bought at the high price. The purchase of a certain minor, unimportant amount for current extensions is made, regardless of market, high or low; but the bulk of materials for public utilities is purchased in a high material market.

The total of $1,095,682 in the opinion of the witness is a reasonable reproduction cost of the buildings.

805 Power Plant Equipment—Almert.

The detail of this is shown on pages 138 to 1,042 of the summary. This is a description of the property actually owned as of July 1, 1916, with the exception that the Bennings Power Plant addition of $300,000. The way that was arrived at was taking the actual expenditures as of the date of this hearing, together with consulting the contracting engineers' progress reports and the contracts for apparatus and that sort of thing that had been actually contracted for, to be delivered very shortly and installed; and it is included, therefore, as a separate item to show it distinct from the balance. A portion of that is not even today completed, but is included in the grand summary on page 7, under a separate heading. The balance of the other item there $2,246,816.86; all of the property included in that is shown by inventory.

On page 343 of Volume 1, there is given the detail of how that $300,000 for the Bennings extension was arrived at. The actual total as we estimated it was $380,000, and included that round figure of $300,000.

That inventory was in charge of three different men at different periods, depending on just what the work to be done was. It was primarily in charge of Mr. Rittenhouse, who directed the work on transmission and distribution; he being in charge continuously, but directing the work part of the time were Mr. McClellan and Mr. Dickerson and others, but under the general direction, supervision and control of the witness.

Mr. Rittenhouse principally was in charge. Mr. Rittenhouse is a graduate of the Stevens Institute of Technology, in the course of mechanical engineering, and from the year 1900 to 1909 he was with the Great Northern Power Company of Duluth, Minnesota, acting in several capacities there; first, as a surveyor; second, as a mechanical engineer; next, as hydraulic engineer; still later, as superintendent of the power station; later, chief engineer, and still later as assistant manager of the Great Northern Power Company.

From 1910 to 1912 he was employed by me in the Department of Examinations and Reports of H. M. Byllesby & Company. Then for a period of one year he was out of my organization and worked with Mr. Pillsbury. They were associated, the two of them doing jointly the work of valuing the property of the Duluth Edison Company, at Duluth, Minnesota. He did similar work for me on the Commonwealth Edison Company and the Chicago Telephone Company and on a number of other smaller properties over the country. He had as his assistants a number of men.

The inventory of the power plant and substation equipment was obtained by actual inspection and count in the field. The additions to the power plant and substation equipment between the date of completion of the original field work and July 1, 1916, were obtained from the Company's records and by an actual check and inspection in the field. Those items of equipment that had been disposed of between the date of the inventory and July 1, 1916, of course, were eliminated from our report, so that this inventory does not show property that was on hand at the completion of the field work, but which was eliminated prior to July 1, 1916.

The cost of the equipment was based on a study of the actual cost of the Company and the cost of similar equipment and the cost of this class of equipment in other localities and on actual quotations obtained from the manufacturers and dealers.

There were cases, of course, of such things as rotary converters, in which, while the apparatus is entirely as good today as it was when it was purchased for the use for which it was made, still the design is no longer continued by the manufacturers, and we could not get prices on that particular machine today. * * * In that
806 case if the type is no longer continued, we assume that the patterns have been maintained, and with the manufacturing conditions as they are today, with whatever betterment there has been, it would give us a better price, as though that actually had been continued.

Our prices were obtained from several sources, some of which were exactly the same and under the same conditions as Mr. Pillsbury obtained them, and from a comparison with his prices, we find that they may have been made up by the same people. The original ones, the first ones we obtained, were corrected somwhat, and later we sent out inquiries to ascertain what increases had occurred in prices from January 1, 1914, to date. We considered those increases. We did not adopt them bodily as quoted to us. In many cases of increase which we applied from old prices we had on similar equipment, we added perhaps half of the increase or whatever we thought would be a normal increase, to get away from sporadic or abnormal prices. So, we believe that the prices we have used are not temporary or abnormal prices, but are normal prices for the period assumed.

Our prices would be materially different if we would ask for a price on this quantity of turbines, for example, to be delivered as of July 1, 1916. Manufacturers might give us some abnormal, sporadic price, that would be all out of line; and, as I stated this morning,

with the general contractor's best judgment on July 1, 1916, knowing that he could place contracts for material and apparatus long in advance to be delivered eighteen months or two years hence, he figured that he would get prices lower than the spot prices of July 1st. Consequently, a number of our prices are lower than the prices as of that time. * * * In some classes of apparatus the manufacturers gave us an increase of 50 per cent from July 1, 1914, but we did not adopt that and increase our prices 50 per cent. We tried to determine what was a fair, normal price as of July 1st, and I thought that a good way to get at that would be what would a competent contractor use; what figure would he use if asked to bid as of that date.

Labor cost is included in these estimates; labor cost of installing, and so on.

The question of the cost of labor for installing that equipment was dealt with by obtaining a number of them from a study of job orders of the Company, and from an analysis of quotations from manufacturers, and for the various pieces of apparatus of importance we made up a schedule of the amount of labor and the kind of labor and the rate for each of such things as installed. For example, 9,000 kilowatt turbo units: We would make up a schedule of the amount, the number of laborers and classes, the number of days, and determine the labor amount and add those to the cost of the apparatus, and the freight and those various other items. For example, on the turbine that I have just mentioned we arrive at a cost per day for a complete gang of labor. Then we have the cost of the apparatus at the factory, the freight, the installing cost, the adjusting and testing, and the miscellaneous labor and material connected with its installation, and the foundations. Then we arrive at the total cost of that particular piece of apparatus.

I think it is a business-like way and proper way to do it.

And the sum included in that final summary—$2,246,816.86, is, in the judgment of the witness a just, fair and reasonable estimate, exclusive of the Benning plant.

My answer is as to those three items, namely, $2,246,000 for power plant equipment, $300,000 for the Benning addition and $1,378,000 for substation equipment, and the evidence just given is to be considered as applying to all three of those items.

Actual freight and hauling on equipment was the actual freight charged and the hauling from point of delivery to point of installation.

807 Transmission and Distribution—Almert.

The cost of transmission and distribution is shown on page 1043 of the report of Volume 4. The inventory is shown from page 1043 to 1108.

That work was in charge of Mr. Rittenhouse with Mr. Francois second in charge, and the men who did the detail work on enumerating the property were principally employes of the company. Because of their familiarity with the location of the property, and in

order that the minimum amount of it would be overlooked, such men as were best suited for this class of work and who could possibly be spared I succeeded in having taken off the pay roll of the company and others to take their places in the operation so that I might have them and use them on the inventory work; throughout the entire inventory work. They were principally linemen and men of that character who were familiar with the property and its various locations, but they had nothing to do with the pricing.

When the various arbitrary divisions of the city and the inventory was completed, it was taken out and spot checked by either the head of the department or the first assistant of the head of the department, and if any errors were noted a reinventory was ordered by a different crew. When I say "any error," I mean a material error, and I assume responsibility for the accuracy and fairness of this work, and for the results as shown by this report.

Mr. Rittenhouse, who, as I have shown, has been associated with me for several years, and whose integrity I have full knowledge of, being directly in charge, and being here continuously with the work, I personally making semi-monthly visits to Washington, would go out and look over this work entirely independently of Mr. Rittenhouse or the other employes. In order to make a thorough check I did not even use company transportation facilities, but engaged outside transportation in order to get into the field unincumbered and unknown to make sure that everything was as it should be.

The prices applied in transmission and distribution were fair prices, without any abnormal conditions, and such as I believe a competent contractor would use in bidding or in putting a price on the construction of a property of this character as of July 1, 1916. They are not spot prices as of that day or of any one manufacturer, but are the result of a study of historical prices and of sources of information and the final adoption, as I have stated, of an average price as of that time. I do not think it should be taken or should be considered as a July 1st price, just of that day, but as the normal price as of that time. Of course, materials of that character cost much more now than they did as of that time, of $7,152,312.38.

I mean by that that with the condition of the market and the prices of materials and labor that that would be a price too low if we had it, say, as of today.

I know that from general comparison and following up the steel, iron and copper prices and labor prices and conditions at factories and ability to deliver and obtain deliveries, and things of that character.

Chairman Kutz: How much would it cost in 1921?

Mr. Almert: I would not venture to say, and much less would I want to bet any money.

Mr. Barbour: Can any one say what it would cost in 1921, Mr. Almert?

Mr. Almert: I do not believe anyone can say, but I think this study of the recent conditions affecting copper and steel and that sort of thing—for instance, in Pittsburgh during the past week a careful analysis was made as to where the steel output was going,

and in percentage not only for Pittsburgh but for the rest of the manufacture, something less than 25 per cent of our total steel output is going abroad. The other 75 per cent is being consumed at home. It is believed because of the foreign prices prevailing that for the next two years or so the greater percentage of our steel output will go abroad perhaps by about 50 per cent. The prices will then be prohibitive for our home consumption, and extension work will have to stop. Then if this war abroad ends at the end of two years
808 from now there will then be an influx of home business that will take up the production of the mills perhaps for a year or two after that, so that from a reliable trade source it is believed that steel, copper and many of these other things following steel—it is believed that we may not look for any recession in price for three or four years to come, and even then for years there will be a readjustment, and I do not ever expect them to get down to what we had two or three years ago.

I would not base an opinion as to the valuation for a public utility property of this character on a speculation as to what is going to happen in the world in the next three or four years.

Commissioner Newman: I mean the observation of somebody in Pittsburgh as to what is going to become of steel in the next three or four years it seems to me is not worth the paper it is written on.

Mr. Almert: I do not believe you can say that. They do not sit up at night and figure those things out just for the sake of filling the technical press. Past experience-, Mr. Commissioner, have shown that those forecasts should be given some weight. I would say this, that I would not base an increase or a decrease in a rate for a public utility on the thing you speak of, but it would have some effect on me as to whether I would feel absolutely safe in acting now or at some future time.

Commissioner Newman: Suppose the German Navy should come out and lick the English Navy, you would have another element.

Mr. Almert: I do not know just to what extent that would enter into this element here. I had to pass, not so very long ago, on credits in the Joplin mining district. One of the big items to be considered there was are these prices for zinc war prices? Will the declaration of peace tomorrow drop the price of zinc back to what it was a number of years ago, and what will be the result? On an analysis of that situation I found that the Joplin district was supplying before the war, approximately 30 per cent of the total production of zinc in the world, and that the production from Alsace mines, and those in German terrotiry, was completely gone, so that since the opening of the war Joplin has been supplying 50 per cent of the total output of zinc, and that the prices have gone up very materially. But at the same time I also found that there were new uses to which zinc was being put, that a large amount of galvanizing is now being done that was not done before on steel, which is such that the increase in this country to the markets which we would supply would be such that if peace were declared within the next month it would take a period of a year and a half before the German mines would be open again, and a longer period before they would be supplying,

and it would be a matter of three years before Joplin would feel the effect, and by that time the production of zinc in this country would be such that Joplin would continue and there would not be any drop, and the price would not be materially affected.

Commissioner Newman: You would not invest any money on that theory?

Mr. Almert: I did the next thing to that, which is the equivalent and the same thing, in my judgment, and that is I approved the issue of several millions dollars' worth of securities in that territory, which I consider is a responsibility just as great.

809 Commissioner Newman: The issue of securities is not as great a personal responsibility as the purchase of securities, is it?

Mr. Almert: It all depends upon the actual standing of the individual passing upon them. I would take more risks with my own money than I would with anybody's else money.

Commissioner Newman: I did not mean to question your professional integrity, of course.

In stating and arriving at prices, the witness has not speculated on prices for the next three or five years at all. "These prices which I have adopted, Mr. Barbour, are, in my judgment, normal prices as of the period about July 1, 1916." He in no respects considers them as momentary or catch prices. Anything of that nature we have wiped out of our prices used, and he was the final authority to pass on the fairness of these prices adjusted, and he assumes responsibility for them in the light of his experience and judgment as an engineer and investigator of such subjects.

The witness does not regard the price charged as an adequate price as at the time of his testimony. Subsequent developments are such that the items that go in to make up the cost of that class of property are very much higher today.

810 Miscellaneous Property—Almert.

The detail for this is shown on page 1109. It includes, stable equipment, laboratory equipment, garage equipment, tools and implements and office equipment.

The quantities as shown in this inventory, from pages 1109 to 1216 were ascertained by an actual inventory and count in the field, and after the completion of that inventory it was brought down to date as of July 1, 1916, also by an inspection in the field and a study of the records of the company, and by the exclusion of discarded equipment.

That inventory was directly in charge of Mr. H. L. Dickerson, and he was assisted by a number of others. When it came to the matter of pricing, the furniture and fixtures were not priced by any one connected with my staff, but by securing the services of a dealer in Washington familiar with those things. The only reason for that was that it was not a very important item, and I did not want to send a man down here just for that particular purpose, so I secured the

services of a local man. I want to say, speaking generally now, that the tools and implements, which represent an item that is movable from place to place and difficult to accurately inventory, that part of the miscellaneous property was inventoried by the foreman in charge of the particular tools and as of a given date in order to definitely tie them down so as not to duplicate by finding the same tools in two different places.

Each foreman inventoried the particular tools that he had under his charge as of that date.

It is not a material item, and if any error did occur by that assumption it would be very small, in fact, negligible.

The prices there are fair and just as of the date stated.

The total—$122,833.50—is the total at which all these items of miscellaneous property are carried into the grand summary on page 7.

Those figures there shown—$13,127,077.32—represent, in my judgment, a fair estimate of the reproduction cost of that part of the property of the Potomac Electric Power Company stated, including the directly distributed overhead charges, but not including the other direct overhead charges and general costs.

Mr. Barbour: What expenses are included in this exception which you make?

Mr. Almert: In the first place, the property of the distribution system of the company outside of the District of Columbia is excluded, and all of the general overheads beginning from miscellaneous property and after, down to the bottom of the page on page 7 must be included before we arrive at the total down to the total reproduction cost.

Nor did he include the Great Falls Power site in the $13,127,00.

The item of engineering supervision and inspection, the detail of which is shown on page 1218 of the record, is, in the judgment of the witness, necessary to be incurred by this or any other company in the reproduction of its physical property.

§11 Administration During Construction—Almert.

Mr. Barbour: I find the next item is for administration during construction, amounting to $180,000, for the detail of which we are referred to page 1220. What is this charge based on? What is this item based on, Mr. Almert? Why did you feel justified in including it as an item in the cost of reproduction?

Mr. Almert: I made up a schedule of this character which was somewhat higher than this, and after consulting with the counsel of the company and a determination of what they actually were, I modified that schedule to this one here (indicating), so it is based partially on my judgment and partially on the facts gathered from the company as to what their administrative staff amounts to, and is for a staff which would begin with the organization of the company and direct the executive and administrative affairs during the construction and perfect an operating organization such as would be ready to take over the operation of the plant increments as completed

by the general contractor. They would also direct the affairs of the engineering department and such supervision as they would give, and in an increasing amount up to the first year until active construction, being a graduated one and a tapering amount during the last year of the construction period, also in a graduating amount I have included it flat for the four years on the basis here assumed of $45,400 in the yearly estimate, making, in round numbers, $120,000 for the four years' construction period.

If the Potomac Company were divorced from the Washington Railway & Electric Company, the salaries of the officers would be materially higher than I have here given. I do not know whether the stenographic force and those others would be affected particularly, but the officers' salaries would be materially higher.

He regards these prices as fair and reasonable expenses under the circumstances then present. These expenses are just as essential as the mechanics who installed the machinery. The affairs will not run themselves. They must be there to administer the affairs of the company. I think they are just as important as any other part of the estimate, assuming that there is a company in existence, and that it is engaged during this period in reproducing the property just as it stands today.

812 Taxes During Construction—Almert.

The allowance is $131,271 and is stated on page 7.

It is based on an investigation of the actual conditions obtaining in the District of Columbia, of the actual rates for taxes, and I find that the taxes on land and buildings and out-door equipment was charged at the rate of $1.50 per one hundred dollars of value, based on a two-thirds valuation, and from our construction program that I have already referred to we found that the annual taxes based on the above rates and ratio of valuation would amount to .658 per cent of the direct physical property cost, which is approximately one per cent, or $131,271. That was one per cent of the total given on page 9. So this is based on the property that would actually be subject to taxation under the laws of the District as they now exist.

It is slightly less than what would be shown on the construction program. If the plant increments were idle an average of two years on the basis shown it would amount to one and one quarter per cent. That is our assumption in the construction program, but in order to be conservative we used one per cent flat.

That is the real expense to be incurred in reproducing a property such as this, and the witness assumes responsibility therefore.

813 Interest During Construction—Almert.

Interest during construction, as stated, was taken from our development cost computation and our construction program, which I wil introduce:

ALMERT EXHIBIT No. 3.

Potomac Electric Power Company, Interest.

Table A shows the method of arriving at interest during construction.

It is assumed that the funds necessary to build the physical plant are provided in advance and call for the payment of 6% interest each year until each successive portion of the plant goes into operation, at which time the interest on its cost is, of course, considered as one of the fixed charged to be paid for out of earnings. Column B shows the state of this fund each year and Column E shows the corresponding interest payable.

On the other hand, the unemployed funds in bank are assumed to draw interest at 3% on time deposits covering all funds in excess of the year's requirements, and 2% on demand deposits covering withdrawals at an approximately uniform rate during the year. Column H, which is the total of Columns F and G, shows this interest receivable each year, while Column J shows the difference between the interests payable and receivable or the net amount chargeable to construction. This amounts to $1,791,644 or about 11.32% of $15,828,421."

It is on this basis that the item of "interest during construction" has been apportioned to the expenditures for the various years.

This construction program is the basis upon which the witness calculated the interest during construction.

It is assumed that funds necessary to build the physical plant are provided in advance and call for the payment of six per cent interest each year until each successive portion of the plant goes into operation, at which time interest on its cost is, of course, considered as one of the fixed charges to be paid out of earnings. Column "B" shows the state of this fund each year, and Column "E" shows the corresponding interest table.

The witness here produced this statement which is found on pages 3584-5.

TABLE A.

Determination of Interest During Construction.

Year.	Total investment at end of year, exclusive of plant in operation.	Total withdrawals from bank during year.	Total remaining in bank at end of year.	Interest, 6% of B.	Interest received on unemployed funds.			Interest chargeable to construction.
					On time deposits, 3% of D.	On demand deposits on 2½% C.	Total.	
A	B	C	D	E	F	G	H	J E H
1....	$15,828,421	$2,285,528	$13,542,893	$949,745	$406,287	$22,855	$429,142	$520,603
2....	15,828,421	3,611,175	9,931,718	949,745	297,951	36,112	334,063	615,682
3....	9,931,718	4,639,255	5,292,463	595,903	158,774	46,393	205,167	390,736
4....	5,292,463	5,292,463	0	317,548	0	52,925	52,925	264,623
Total interest chargeable to construction (11.32%).....								$1,791,644

814 This table is based on the construction program referred to as "Almert Exhibit No. 2."

Column "B" shows the state of the fund each year, and the column "E" shows the corresponding interest payable. On the other hand, the unemployed funds in the bank are assumed to draw interest at three per cent on time deposits covering all of the funds in excess of the year's requirements, and two per cent on demand deposits covering the withdrawals at an approximately uniform rate during the year. Column "H" shows the total of columns "F" and "G," and shows this interest receivable each year, while Column "J" shows the difference between interest payable and receivable, or the net amount chargeable to construction. This amounts to $1,791,644, which is approximately 11.32 per cent on the construction cost of $15,828,421, on which it is figured. That amount of $15,828,421 covers all the physical property, with the directly distributed overheads, *plus* the legal and organization, financing, engineering, supervision and inspection, administration during construction, taxes during construction, preliminary operation and adaptation, stores and supplies, working capital, preorganization expense, compensation to the conceivers and brokerage and commissions. It is on this basis that the item of interest on the construction has been apportioned to the expenditures for the various years. The table submitted with this shows the amounts in each year, and the table which I will submit later shows how this has been apportioned. It is calculated upon the assumption that all of the money necessary for the reproduction of the physical property has been procured in advance for the actual construction extending through a five year period.

If instead of calculating the interest that way he had adopted the opposite method of only allowing interest on the actual expenditures each year pending the completion of the different units up to the time they were turned over to the operating department, it would have increased it to $1,899,410, or $107,766 more than the basis which the witness assumed.

If he had adopted the Pillsbury method and applied it to his construction program, he would have derived the figure of $1,899,410. That item is an absolutely proper item to be included.

It is usual in all estimates of this kind that the witness has ever seen and he has always included this item.

It includes interest on the amount allowed to the conceivers as compensation because the conceivers of the project generally receive their compensation as soon as the company has been financed. They do their work before the organization of the company, and when the company is organized and actual construction is begun their compensation is paid and is one of the earliest expenses of the permanent company.

Allowance is made for the assumed fact that part of the property goes into operation at the beginning of the third year and as soon as it goes into operation interest during construction ceases.

He thinks this is a fair and reasonable and conservative method for ascertaining the proper amount of interest to be charged during construction.

815 Preliminary Operation and Adaptation—Almert.

This item ($50,000) covers the preliminary operation of plant during construction, the testing out of the machinery and equipment, and is applied on the assumption that as each plant increment is completed by the general contractor it is turned over to the operating department of the company, which, in co-operation with the engineering department, tests it out, operates and adjusts it and tries it out sufficiently to insure its readiness for regular operation. This testing out and preliminary operation on individual parts to insure their co-ordination with the whole I have estimated would cost at least $50,000. To explain a little more fully just what that means, take the Benning Power Plant, the reproduction of it. As soon as the boilers and piping, turbines, switch boards and everything are set, under the boiler a slow fire would have to be started to gradually dry out the brick work and insure that there would be no cracks. A quick fire would develop cracks in green brick work. When a slow fire has been carried for a few days of this character, water is turned into the boilers, and the steel boilers are warmed up but not under pressure. Gradually the pressure is increased. So the boilers are treated to see whether or not there are any leaks in the boilers or connections. Then steam is gradually turned into the piping to develop any defects in the connections or defects due to expansion under heat. Steam finally is carried up to the normal boiler pressure and turned on to the turbines to warm them up. The valves are cracked, as we term it, or opened slowly to admit just a little steam to permit the turbine to rotate slowly, gradually bringing it up to speed without load, running it that way for a few days, adjusting the bearings to insure that they are clean and properly adjusted and lubricated properly.

Gradually the generator is excited and warmed up without load, and any adjustments that are necessary are made to insure that there is no defect in the insulation. Then gradually an artificial load is prepared to load up the generator, and the wiring of the switch-board instruments is tested out in this way; then after carrying a load artificially for a sufficient period, and testing the heating limits according to the contract, the machine is thrown onto the line and into active service, but without load, just simply to see that it will properly co-ordinate with the balance of the system, and in that way all the parts of the plant, the transmission system and substations and equipment and that sort of thing have to be tried out, and this expense is here assumed to be $50,000.

This operation is not repeated, but it is gone through with once in every plant unit before it is put into operation. This is usually computed at half of one per cent of the physical property cost in estimates of this kind, and half of one per cent would be in the neighborhood of $65,000. My estimate here is $50,000.

In his experience and observation, the witness considers this an absolutely necessary expense. I do not believe any one with reasonable judgment would attempt to put units of this character into

operation without having tried them out sufficiently to insure their being reliable in service.

This expense is not provided for anywhere else in this estimate of reproduction, but it is fair, reasonable and just and it is always provided for, in my judgment, in one way or another, whether specifically set out in this way or not.

816 Store and Supplies—Almert.

The amount for this item is shown in the grand summary on page 7, aggregating $129,133.60, shown on page 1224.

Mr. Almert: Stores is an amount which fluctuates daily and with seasons of the year and with financial conditions. There are many factors which affect the amount of stores on hand, and the figures which I have shown are based on the annual inventories of the company, plus coal and miscellaneous operating supplies such as oil, waste, etc., located in the generating substations of the company, but which was not inventoried in detail in the field. The company makes regularly an inventory about the month of November of its stores and supplies on hand, which it then checks with its books. In an examination of that it was found that the two have always checked very closely. The difference has been negligible usually. From the books of the company and their inventory we found that for the year 1913 they carried $110,749 of supplies and stores; in 1914, $95,751; in 1915, $98,520; making a total for the three years of $305,020.00. The average of those three years is $101,673. We adopted that figure and carried the book figure of $27,460 for the coal, oil, waste, etc., making a total for stores of $129,133. This estimate is probably ultraconservative in that the amounts taken were at the end of the construction season, at which time the amount of supplies would be at low ebb. If it were taken in May, or a little earlier, of each year, the amount no doubt would be considerably more, at which time the company had acquired additional stock for construction purposes. We could have taken it on that basis, but to be conservative we adopted this figure and this basis.

That particular item of coal would be higher in November than the others. The coal, oil supplies, waste and those things are less than one-fourth of the total, but we did see places in the stores account where they had over $150,000 of supplies on hand, exclusive of the coal.

Coal is an item which varies primarily with the season of the year, and, secondarily, with consid-tions with regard to the supply of coal, car shortage, possibility of strikes, and things of that character.

Coal is needed for operating purposes and not for heating purposes. The weather does not affect it, but the long hour lighting days of the fall and winter increase the quantity of coal. In this case, though, I would say, it would be minimized. I think it would be negligible on account of this plant supplying railway as well as light, which is heavier in the summer than in the winter.

An item of this kind should be charged as a part of the cost of reproduction because it is part of the total capital investment of the company before it can begin to operate and continue to operate.

817 Working Capital—Almert.

The next item carried into the grand summary is for working capital, $378,396.71.

Mr. Almert: In arriving at that amount of working capital required to carry the business of the Potomac Electric Power Company, three elements principally were considered; the operating expenses, the construction requirements and a reserve or an amount to maintain and keep intact the credit of the company to care for contingencies that may arise. Based on a 12-months operating period ending June 30, 1916, the operating expenses of the company were $978,520. As collections are not all in by the 15th of the month following that for which the services are billed, we assume that at least one and a half months of expense were tied up, and many times the amount was considerably more, and we have used this figure of one-eight- of the annual operating expenses as the first figure, or $122,315. Construction expenditures cannot be funded for several months after such capital additions have been completed, so in working capital cash must, therefore, be provided in advance at the time that bonds or other securities are issued and the treasury reimbursed. Based on six months' requirements, the average capital expenditure during the last five six-months' periods prior to June 30, 1916, was $150,081.

During that period there were no extraordinary conditions encountered, but we think it is necessary that a reserve be provided to take care of contingencies, which I have estimated at $50,000 for an amount in working capital to take care of some unusual things that might be encountered, and that portion of the estimate I think is a very small amount, and it would be considered good business to carry for that purpose.

The next item is that of handling the collections of the Potomac Electric Power Company. Without reading that, the company has an arrangement with some twenty-five or thirty banks in various sections of the District that do the collecting of their bills, and they might have some other arrangement, whereby they would have offices in various parts of the city where they would have paid employes to receive the payment of bills, or they might arrange with druggists or others on a monthly payment basis or on a percentage basis. Instead of that the company has a very efficient arrangement whereby those twenty-five or thirty banks collect its bills without compensation, other than the agreement to leave an amount — money on deposit with them. That amount I have estimated at $50,000 for the twenty or more banks which handle some $50,000 of collections monthly, and the balances aggregate something between $50,000 and $90,000. The estimate which I have included here for that purpose is $50,000. Summing up the capital we then get one-eighth of the operating expenses or $122,315, the amount

for construction requirements $156,081, the amount for contingencies $50,000 and the amount for the collection in banks $50,000, making a total of $378,396.71. This total is my estimate of the working capital, and this together with the stores already testified to forms what is generally known as working capital.

The item of stores is not included in the item of working capital. These amounts were obtained by members of his accounting staff under his direction.

818 I had a member of my staff look into that matter and report to me, and I find that there is a net amount of $533,539.99 outstanding for capital expenditures as of June 30, 1916, for which no authorization has been received from the Commission for funding or the issuing of securities. The total amount is $79,500 greater than that, but the Commission did authorize, by their Order No. 146, the funding of $79,500 of capital expenditures on account of their order; but the net amount is $533,000, which, in itself, makes necessary to have working capital for that amount.

819 Great Falls Power Site—Almert.

The next item in that statement is one for the Great Falls water power site at $1,000,000. The detail of the basis for that, as I understand, is shown on page 1217, and the statements of fact there shown are correct to the best of the knowledge, information and belief of the witness.

This item should properly be included under the first item of lands. This item I did not get to in the early part of the work, and also for the reason that considerable discussion might occur and objection be raised to the item. In my judgment, there is no question about it being a proper one, but in order to eliminate the objections instead of including it under real estate and land I have here included it—in order that the various overheads above computed will not be included I have made no effort to determine its value as to water power or as a water power site or anything of that character, but have simply included it here at the cost to the company.

I have been out there several times. I have not made any attempt to set up the stream value or the amount of water available. I know that it is capable of 80,000 horsepower from the Government reports. I do not believe that would be twenty-four hours a day for 365 days in a year. In fact, I am quite sure it would not be without storage facilities there.

The records of the company show that it owns a two-thirds interest. I have not gone back to prove it up.

Witness does not know who owns the other third.

About two years ago I read some reports in the possession of the company on that subject, and expected I would follow it up and make a study and determination of the development possible there. The work was overlooked, however, and when it came down to the matter inasmuch as it is not a developed situation and did not need immediate action or attention I simply included it here at the cost at which it is carried on the company's books.

It is not used for the production of electrical energy here in the District. There is no question in my mind, or I think in the mind of any one else, that its purchase was made in advance of the supplying of energy in the District for the reason that the volume of business which the company has outside of the District of Columbia might acquire * * * within reasonable transmission distance would show it could not have been bought for any other purpose.

In all matters of this kind of a public utility the future has to be looked into and provided for. You cannot always obtain facilities the moment they are needed. Take telephone companies for example? They have a department which does nothing else than study the requirements for twenty years in advance.

I might also add in these reports I have testified to in purchase cases and in other cases, part of the requirements was to estimate in advance for three or five years the capital requirements for the needs of the utility, the probable rate at which money can be obtained, the amount of the fixed charges and the amount of earnings that will probably be available. It is very customary and the ordinary thing to do, and in any operating company the business management looks farther in advance than that, no doubt.

No doubt additional property would be required if they wanted to raise the head or if they wanted to create storage and that sort of thing.

Witness knows of no other water power situated at or near Washington capable of such development as this.

820 Mr. Almert: At the time of looking over the reports I determined the reason in my own mind, and that was that the location of storage facilities to bring up the minimum, without a prohibitive amount of additional property being acquired, together with the construction cost and the amount of power demanded in Washington at the time, did not warrant its construction. I have not passed on the subject whether the conditions warrant its construction today. I doubt if it can be warranted to be constructed even today, but I have not gone into the subject sufficiently. As the cost of fuel goes up, it will become more valuable in the future than it is today. It is an unreasonable supposition that the cost of fuel will go down.

Commissioner Newman: It is no more unreasonable than to assume that it will go up.

Mr. Almert: Oh, yes, positively. We are gradually exhausting our coal supply, and the price of coal is going up. We are also exhausting our supply of oil and things of that character. I do not suppose any one would reasonably suppose that the next generation will have lower priced coal than this generation.

Commissioner Newman: I cannot agree with the confidence with which you predict future prices.

Mr. Almert: I will say this, Mr. Commissioner, that from my connection with this class of work, and from the study I have made of the fuel supply, I feel absolutely confident that the future prices of fuel will be higher than those of the past. They might temporarily

be lower in a given locality on account of the discovery of better coal, but the average prices will not.

Commissioner Newman: Within a generation we might be getting radium in sufficient quantities to use it.

Mr. Almert: I think you are going me several better by going into that situation.

Commissioner Newman: I state that simply as illustrating what, to my mind, seems to me the utter futility of speculating as to what is going to happen generations ahead.

Mr. Almert: I don't think the coal supply is a matter of speculation. Other things are going up that are not being exhausted, and coal is essential to operate what you have now. A number of developments have shown that coal is going up. During the last generation in the anthracite districts of Pennsylvania the washeries there were consigning large amounts of fine coal into the bed of the river with no*t* thought that it would ever have any value. Now if you were to travel along the river near Harrisburg you will see a fleet of boats regularly employed during the open season, when there is no ice on the river, with suckers sucking up all of thie fine coal, which they then wash and ship into the New York market and surrounding territory, where it sells at something over $3 per ton. The culm banks in Pennsylvania, which it was expected would never be of any value, have become so valuable due to the increased price of coal that immense steam-electric-plants have been located close to the culm banks to utilize this supply of fuel, and, everything considered, I do not believe it is speculative to say or to believe that the future price of fuel coal is going to be higher than it has been in the past.

Mr. Barbour: Would you feel justified in expressing an opinion, Mr. Almert, as to whether or not the investment by the Potomac Electric Power Company of $1,000,000 for a two-thirds interest in that water power is justified as of the present time.

Mr. Almert: From several standpoints, yes. * * * One is the right and obligation on the part of a utility of this character to provide in advance of its needs power of this character to insure a source that is ample, and for some other reasons I might work up that do not come to my mind right now.

Chairman Kutz: While that may be true as a general observation, how can you testify as to the justification in this case if you know nothing as to the value of this water power as to whether it is a worthy or unworthy water power project?

821 Mr. Almert: I think my examination of the reports two years ago showed me sufficiently that it is worthy of development, but in my judgment the fixed charges would be such that it could not at this time successfully compete in cost per kilowatt hour of current delivery with a steam plant. If you ignore for the time being small differences in a cost of that character on the assumption that that was a permanent thing and eliminate the risks of the continuity of the coal supply——

Chairman Kutz (interposing): How can you then say it repre-

sents a good investment on the part of the Potomac Electric Power Company?

Mr. Almert: I was looking far enough in advance of its needs, and I think this is an investment which a company of this kind should make. There are other reasons which I do not care to go into which also justify it. * * * At the time this property was acquired the steam turbine had not been developed to the efficiency it now has been developed to, but Washington is not in a position exactly to take advantage of the full development of the turbine. Still larger units are slightly more efficient, but not sufficient to make any large difference in the cost of generation. * * * I feel that I am fully competent to make a study and fix upon the value of this water power, but I have not done so; but I feel I did look into it sufficient to say that this $1,000,000 investment for future needs was justifiable, and I simply put it in at its cost. If there is any question about it I would be very glad to make an estimate of the value and put in a higher figure.

Chairman Kutz: Why do you say "a higher figure"?

Mr. Almert: Because of my connection with many properties of this character, knowing what it costs to investigate them to determine what they will do and the cost of determining that information and adding it to its cost.

Chairman Kutz: Would you still say that if you knew that the property had been purchased a few years ago for very much less than the price that the Potomac Electric Power Company paid for it.

Mr. Almert: I haven't any doubt but what the original purchaser probably got it for the cost of filing. That would not alter my judgment as to its value to the Potomac Electric Power Company. * * * I think it is by this time worth more than the Potomac Electric Power Company paid for it. I would not want to say a definite amount.

Commissioner Newman: Suppose you, as an engineer, should conclude that it was not feasible as a power project, you would not then put it at more than $1,000,000, would you?

Mr. Almert: I don't know. I don't see why I should make that assumption, do you?

Commissioner Newman: I didn't say anything about your making an assumption. I said suppose you found after an investigation—you say if it is desirable you will make an investigation.

* * * * * * *

Mr. Almert: There is no question about it being feasible as a power project. I don't think any one would question that. The point is is it capable of economic development. It may be feasible but it may or may not be advisable. I do not know that it is capable of economic development at this time.

I cannot positively state that. I will state this, when it becomes economic to develop to any one it will be to the Potomac Electric Power Company first because of the magnitude of its business.

He does not know whether it is capable of economic development

or not but yet he thinks it is worth now $1,000,000 to the Potomac Electric Power Company.

822 Chairman Kutz: You have said there were certain other reasons why it was advisable for the power company to acquire this water power site but that you did not care to speak of them. Is one of those reasons the fear of competition in case the water power would be developed by some other agency than the Potomac Electric Power Company?

Mr. Almert: I would not call it fear, Colonel. I had one of those things in mind. During my years of experience in connection with this case of enterprises I have found that there are two kinds of capital that go into these enterprises; one of them, for the want of a better term, I call the educated money, and the other fool's money. A group of private individuals will undertake a development which never should have been constructed, but once in they will throw good money after bad and bring about a condition which was entirely unwarranted in the first place, and which proves expensive and unfortunate to all concerned in the future. I haven't given any value to that in connection with justifying this $1,000,000 here, but it unquestionably is an item which ought to be considered by every public utility for the good not only of its own investors but for the public as well.

Chairman Kutz: If you object to the word "fear" I will frame the question a little differently. Was the possibility that this potential power might be developed by some other agency a sufficient reason in your mind for its acquisition by the Potomac Electric Power Company?

Mr. Almert: I would not want to answer that positively yes or no, Colonel, because that was not the basis under which I considered this investment, and I have not discussed that phase of it with the company.

Chairman Kutz: I asked you as an expert.

M. Almert: Whether or not they would be warranted in paying $1,000,000 for it I would not be able to state offhand now. They would be justified in paying something, but how much I would not want to say.

Chairman Kutz: For the purpose of squelching competition?

Mr. Almert: This class of business, Colonel, by every one who has given it any study is recognized as a natural monopoly, that one company serving a territory supplying all of the needs of that territory can do so better than more than one. I am assuming now regulation to see that other things are done properly. Under those circumstances it has been held, and it is the policy of the California Commission and a number of the commissions, that the public is best served by one source of power, and when I say that now I do not mean necessarily that there should be only one power plant in the District, because in situations like Chicago we reach an amount of business that it is not good policy to keep all the eggs in the one basket, but reaching the maximum size of power-generating units, and having a number of those in one station, it is better to have plants located at different places in the city where the water and coal

supply is equally available, but for the average sized city it is known by engineers and recognized by commissions that one source of supply is more economic and is better in the long run for all concerned. It is one of the elements with regard to which I think the public utility does not do its full duty to the public which it serves if it does not, in addition to taking care of its own self-preservation, seek to keep out competition and duplication of investment in the line of business in which it is engaged.

Chairman Kutz: I think my question is sufficiently answered.

Mr. Barbour: You are referring there to wasteful duplication of machinery, Mr. Almert, are you not?

Mr. Almert: Any duplication and competition in this class of business in my judgment is wasteful duplication.

Mr. Syme: And any expenditure to preserve the monopoly is justifiable?

Mr. Almert: I do not say that; no, sir. This item of
823 $1,000,000 as carried in this summary, does not carry any of these charges, these overheads, either those preceding it or those succeeding it, or does it add to taxes during construction, interest during construction, administration during construction, engineering, supervision and inspection prior to organization and adaptation, stores and supplies or working capital, nor to any of those below the line either. It is treated entirely different from all the other elements in the reproduction element, but please do not misconstrue my position in putting it in here at this point in that way as not worthy of different treatment, but simply for the elimination of argument on that subject I have eliminated the overheads on it.

824 Legal and Organization Expense—Almert.

These items down to this point including the Great Falls water power, aggregate the sum of $16,922,522.63. They do not include all the elements of cost necessary to be incurred in the reproduction of the property and business of the Potomac Electric Power Company. There are items which are added below the line beginning with legal and organization and franchise expenses. That is given on page 1227 of the report and is carried into the column at $262,542.

This sum is arrived at by taking two per cent of the direct physical property cost. This is an item which, in my judgment, is right and proper to include, that is, the expense of negotiating and securing the franchises, which, in a case such as the Potomac Electric Power Company, is undoubtedly a very large amount, and the cost of negotiating for a franchise is perfectly legitimate and proper, I think, and the company has several; but owing to the fact that these items of legal and organization are incurred before the incorporation of the company they rarely, if ever, appear upon the books of the company, and it is difficult to secure exact data regarding the amount. It is customary in cost of reproduction estimates such as this, to include it as a percentage based upon cases where the information was obtainable. It is usually included at about two per

cent, and I have so estimated it here, which gives me the amount of $262,542.

In the light of his experience and judgment that is a fair and reasonable method of arriving at the amount and is a necessary expense to be incurred by any company.

Mr. Pillsbury had an item for legal and organization, but in his organization he also included administration. My combined items of administration, legal and organization amount to 442,000, and are comparable, I think, with Mr. Pillsbury's item of $301,335, shown by him on page 58 of his report, although mine includes some items more than he does, but in a general way those two items are comparable. Mr. Pillsbury's estimate did not purport to be completed. He stated that some portion of what would properly be chargeable under this heading he did not consider within the purview of his employment. No portion of this expense is included in any other item in the summary.

825 Financing—Almert.

The next item is $60,000 for financing and appears on page 1228 of the report.

This is an item of expense in connection with the securing of the bulk of the funds for constructing the project and after the franchises have been secured and options have been obtained on sites for the location of plants, etc., preliminary estimates are completed so that reasonably accurate estimates of the cost of the project can be made; a sufficient amount of stock is sold to complete the prior engineering estimate and to commence actual construction. That is usually necessary in a project of this character. It is usually necessary in connection with projects of this character to enlist the interest and confidence of financial houses that would be interested in the underwriting of securities * * * and when this preliminary work has been done the officers start negotiations for providing this additional capital, and submit their engineers' reports for the perusal of the bankers, and those bankers, if interested, will want the engineers selected by them to go over the situation and check the accuracy of the company's consulting engineer's reports and see whether or not the statements made are fully borne out. It may be that the first group of bankers consulted determine not to go into the project, and then others will be approached, and they in turn will want to send engineers down to make an investigation. All of the costs of those investigations have to be borne by the company.

Chairman Kutz: All of which is exactly set forth in your report, isn't it?

Mr. Almert: Yes, sir.

Chairman Kutz: Have you added anything to what is in this report?

Mr. Almert: I don't know whether I have or not.

Chairman Kutz: You are reading it?

Mr. Almert: I have not read a thing that is in there, Colonel. I do not believe the record will show that I have read a thing on that

page. The cost of one such investigation as this would be $20,000, made by a reputable firm of engineers of standing, and it may be that several would be made before some one was interested sufficiently to underwrite it. The cost of printing the prospectuses, the engraving of the bonds, the advertising, the postage and those things would no doubt amount to $10,000, and the other costs connected with it I have estimated would make the total cost of this $60,000. That is exclusive of any brokerage or discount on the issuing of securities or paid for the issuing of securities or sacrifices made for the issuing of the securities.

As vice-president of the Consumers Power Company, which I have stated in my experience, I went through those stages of costs in connection with the organization and development of that company. As vice-president of the Securities Investment Company we bought a number of issues of securities on projects that were constructed, and in the many other sources that I have reported in my experience which were either consolidations or the construction of new property this item came up in each and every instance and is a necessary part of the expense incurred before the money is secured. This is a reasonable expense as applied to this company.

826 Compensation to Conceivers—Almert.

The next item is for Compensation to conceiver, $650,000.

Compensation to the conceivers of the project, or promoters' profit is an item which in my experience is an expense in every project of this character of any size. Even the very small ones encounter this item. Conceivers frequently spend two or three years looking up projects of merit, investigating the possibilities of their development, and being without funds, take them to those who have funds or have access to funds, with a prospect of their development; and they spend considerable sums in traveling and investigation, with a view of securing compensation under this heading if the project is developed, and they may look up several before they succeed in interesting some one.

A man of this character, while the title of "promoter" is sometimes not looked upon very well, is an essential and a necessary part of our undertakings. His foresight ought to be properly compensated for, and usually is. It is an item which is right and proper, and has been allowed in a great many cases, and usually varies from 5 to 15 per cent of the physical cost.

In my own experience, within the last two years, in the Elyria and Lorin properties, in Ohio, the conceiver of the project there foresaw the possibility of physically connecting the plants in the two towns and serving electric energy to the quarries in the surrounding territories, secured options on those properties, and interested a New York concern in financing it; and during the negotiations this man died before he had been compensated: and through the Surrogate Court in New York the Company was obliged to pay his estate $45,000 in cash, which, as I recollect it, was somewhere between 6 and 8 per cent of the physical value of those properties. That

amount was included by me in my valuation before the Ohio Commission, and was allowed in full in the capitalization of that consolidation.

The Second District New York Commission recognized this item as right and proper. I have not the citation before me, but Mr. Syme can get it by referring to the Rochester, Corning and Elmira case, in which Commissioner Stevens deals at length with this item, as to its need and being right and proper, and in that case allows 5 per cent of the value of the property for that item.

He thinks that $650,000 is a fair and just amount to be allowed in the present case. It is not an exact percentage of the physical property, but is an amount which I ran through my mind as being a reasonable amount. I think it is about 5 per cent, and payment is provided for in the second year before operation. The way it is paid is that the conceivers receive in cash the amount of out-of-pocket expense that they have incurred in connection with that particular project, together with an additional amount to make up for the several projects they have investigated but which did not go through, and an amount for ready cash—whatever is agreed upon—and the balance is usually in the form of securities.

Mr. Barbour: Is any portion of this item included under any other heading in your summary?

Mr. Almert: No, sir.

827 Preorganization Expense—Almert.

The next item appears to be one for pre-organization expense, $25,000.

This is for an item previous to the organization of the company, to determine, for the satisfaction of the officers of the company, as to the feasibleness of the project, assuming that the conceivers of the project come to them with this project and state the possibilities of it. They, as business men, incur expenses by the retaining of engineers to estimate the cost of construction of the project and the probable revenues and expenses, before they feel sufficiently warranted to organize a company; and these expenses incurred in that way are real expenses and are prior to the organization of the company, and one examination and report by a firm of engineers of standing on a project of this size I have estimated would cost $20,000, and that the field and miscellaneous office expenses incurred would be an additional $5,000, making a total of $25,000.

These are necessary expenses and would be necessary to be incurred in the reproduction of a property and business of this character.

828 Compensation to Conceivers—Almert.

I cited the Rochester, Corning and Elmira case * * * It appears in the First Public Service Reports of the Second District of New York, No. 166, decision dated March 30, 1908.

829 Preorganization Expense—Almert.

This item of $25,000 is fair, reasonable and just and is not included in any other item incorporated in the grand summary.

830 Brokerage and Commission—Almert.

The next item is for brokerage and commission, $700,000.

I have not made this determination complete to include discount, but this item simply refers to the cost which a company of this size would have to pay to a syndicate of bankers that would underwrite an issue of securities sufficient to provide net proceeds sufficient to build the property at the cost that I have here estimated, in accordance with the building program.

The water power site at Great Falls was not in the estimate at the point at which this was based. This 3½ per cent which I have estimated for this item was exclusive of Great Falls, and is an amount which, in my judgment, is conservative, and which a company of this character would have to pay to a syndicate of bankers as their charges—syndicate manager's charges if you please, or by whatever name you wish to call it—for the floating of this amount of securities or an amount of securities that would net sufficient cash to pay it; that is, exclusive of discount.

Discount is based on the items previous to this amount, including the one item below it—the development cost—but exclusive of the Great Falls water power site, and is based on approximately $19,000,300, I should say.

In half a dozen or more cases of companies of this character, with which I have been connected, the exact amount of the syndicate manager's compensation was 5 per cent of the total amount.

They were concerns of a magnitude like those surrounding the District of Columbia now. I presume that sounds a little bit hard to an engineer, but you will not think it hard if you go into the field to try to raise that amount of money in a lump sum, and as I have stated, in half a dozen cases with which I have been connected, that was the exact amount—5 per cent of the total amount of securities issued. They were in New York; I mean, while the companies were organized in New York the plants were all over the country. They were in large cities comparable in size with Washington; one was a plant in Minneapolis, but that was only one of several properties in connection with the project. The plant in Minneapolis was the General Electric Company. It is capitalized somewhere between fourteen and sixteen millions of dollars for that particular property. That is part of a holding company which owns a number of other properties; but this item of 5 per cent was a well established amount charged by syndicates which underwrote securities for undertakings of this size and character right along, absolutely exclusive of discount.

Commissioner Newman: Were any of the men in the syndicate that underwrote it stockholders in the plant that was underwritten?

Mr. Almert: Previous to it, I should say no.

Commissioner Newman: What do you mean by "Previous to it"?

Mr. Almert: Previous to the underwriting. Subsequently, yes, because this compensation was usually in the form of securities, stock or bonds, or both, and cash.

I am sure that in that case you speak of there was no connection. I would not say that that was so in the other cases; but I can say for sure that it was in that case. That was a case in which Stone & Webster sold to H. M. Byllesby, and they had no connection; never had any before or since.

This is a fair and reasonable estimate to cover that item of expense in the light of his experience and is an usual and
831 necessary expense to be incurred in a property such as this, and the item is not included in any other item carried in the final statements.

832 Development Cost—Almert.

That brings us to the item of development cost carried into the summary at the sum of $2,115,323.

The development cost is an item which I have estimated here as 12½ per cent of the physical property reproduction cost of $16,922,000, which gives an amount of $2,115,323. That was my judgment of a reasonable amount for attaching the business to the physical property, not in the manner in which the business actually did come on (which was at a very much lower rate and necessarily at a higher cost), but under this construction program which we have here assumed, assuming that the business would come on within that period; that is, by the end of the sixth year, and in that connection I have two prints here which I would like to submit and say that in my estimate of this development cost, in explanation of this table before submitting it, I have used the determination which is simply cor-oborative of my estimate of 12½ per cent, and was first used by John W. Alvord, of Chicago, and Mr. Leonard Metcalf, of Boston, and is the amount which in a number of cases, they determined a company should pay in addition to the value of the physical property, to avail themselves of the difference between the deficits during construction of the duplicate plant, which the purchaser might build, and the net income of an existing plant, which the purchaser might buy. I think that the details of it are a little too lengthy to read into the record, but by submitting them together with the construction program, I am sure that Mr. Pillsbury, with his familiarity with the basis of the computation, and the tables, can verify them satisfactorily.

The assumption here made is not the earnings of the company, but the assumption of a fair return from the time the money is actually invested, and the computation has been made on two bases; one of a 10 per cent return, the other of an 8 per cent return. The estimate upon an 8 per cent return is a development cost of $2,220,000,

which is in excess of the amount which I have included of $2,115,000, but is very close to that amount.

This method has been adopted and used in a great many cases, decisions by courts, commissions and boards of arbitration, and the amount which I have here included is quite in harmony with those other cases.

The chart was then tendered in evidence and marked as Almert Exhibit No. 4 which should be inserted here.

Please do not misconstrue and think, from the use of this 8 per cent, that that is my judgment of a fair return to be allowed on the investment of this property. I have made no such determination, and to illustrate what it would be I have made it on two bases, 8 and 10 per cent. The second sheet shows the development cost on that basis is $3,509,100, as against $2,220,000 on the 8 per cent basis.

The amount is fair, reasonable and just to be included in a reproduction statement of the property and business of the Potomac Electric Power Company, and is also conservative and it is not included in any other item in the final figures.

Mr. Barbour: Please state whether or not, in your opinion, any responsible firm of contractors or engineers would be willing to reconstruct this property as at the present time for a sum less than that indicated by you in these figures, $20,735,387.63; that is, to reproduce the property and business.

Mr. Almert: I feel reasonably positive that they would not.

833 Easements—Almert.

Below that is included a further item of property rights in easements of $2,500,000.

That, strictly speaking, is not a cost item. It is my estimate of the value of the ownership of the franchises of the Potomac Electric Power Company.

Mr. Barbour: Do you know what the extent of those easements is?

In general, yes. I have not measured them to the last detail; but the company is occupying certain portions of public space, and has a large amount of easements over private property, and is serving between twenty-five and thirty thousand customers in the District, through something over 200 miles of conduit, laid in the streets, and over 150 miles of overhead lines; and from a study of the conditions here comparable with those elsewhere, it is my judgment that these property rights have a value of two and a half millions of dollars, in round numbers.

First of all, I looked up some cases in the District here. One of them was the case of the Metropolitan Railroad Company vs. McFarland, in the 20th Appeal of the District of Columbia, on page 439, and also in the 44th Appeal cases, District of Columbia, on page 481. In the opinion of the court there, speaking of the company in the first case, the judge said:

"But it has a franchise and a right of an easement in the bed of the streets that constitutes property."

And in the second case—this case was carried up—the court affirmed the property rights of the company in the franchise.

We frequently hear the statement made that in rate cases the element of franchise value should not be considered, or that a franchise, being a grant by the public to the corporation, without compensation, cannot be capitalized by the corporation as an amount on which to base future rates.

The franchises which the Potomac Electric Power Company own—that is, the franchises themselves—no doubt cost a considerable amount to obtain, and are valuable; but that cost or value is not included here in this computation.

This estimate is only for the property value or the value of the easements under or as the result of the ownership of these franchises, and the assumption is here made that the ultimate purpose of this inquiry is the fixing of rates, and not condemnation of the property for purchase or sale.

In Maryland, easements in public streets have been given a definite status as property by the decisions of the Court of Appeals, in 101 Maryland, on page 547, in 105 Maryland, page 543, and in 111 Maryland, on page 264.

In the first one, as a result of these decisions, the Maryland Commission in the Consolidated Gas case in Baltimore made an allowance for this item of property rights and easements, as a sum to be added to their valuation for rate-making purposes, for the value of that company, of an amount of $5,000,000. In the decision by Chief Judge McSherry, he said that the right to occupy the streets with gas mains is a franchise. An actual occupation of them in that way pursuant to the franchise is the acquisition of an easement.

Now, in trying to arrive at what those similar rights were worth in Washington, the courts do not give an exact method of determination.

According to the last government census, the City of Baltimore had a population of 558,485 inhabitants, and with that population and the amount allowed by the Commission it gives us $8.95 per capita as this value.

834 The same census gave Washington a population of 331,069, and I have estimated the population as of the date of this hearing to be 350,000. I saw, by a statement in the papers in the Census Bureau last week, that their estimate is something over 360,000; but on the basis of the value per capita in Baltimore it would indicate that with similar rights here, if the rights of the companies are the same in character and extent (and it seems to me they are identical), we would have a value of $2,963,000.

Another basis is that in the case of the Baltimore Telephone Company, where that company pays the city 20 cents per lineal yard for the location of underground conduits and 7 cents per lineal foot for the location of overhead lines and poles in the streets. Taking the other computation on this basis, the Potomac Electric Power Company has about 366,666 lineal yards of underground conduit and 840,000 lineal feet of overhead pole lines, and on the basis of payment in Baltimore of 20 cents in conduits it would make $73,-

333.20, and on the basis of pole lines, at 7 cents a lineal foot, it would be $58,800, making a total of $132,113.20. And if we used the same basis for capitalizing that amount that Dr. Bemis did in the Baltimore case, namely, 5 per cent, it would give a value for these rights of $2,642,644.

The amount which I have included in the estimate is not the exact one of either of these, but the round figure of two and one-half millions of dollars.

This is a fair, reasonable and just estimate of the value of those property rights, assuming that they are property rights. I am not in a position to say whether or not my estimate would be modified if this were a purchase or condemnation case.

Chairman Kutz: Have you ever valued such a so-called property right in a purchase case?

Mr. Almert: Yes.

Chairman Kutz: On what basis?

Mr. Almert: Not as separate and distinct here. In the other cases that I have been connected with the franchises, including these rights as a whole, have been included.

But he has never valued them in a purchase case separately nor in a rate case separately.

The witness does make a distinction between values for rate-making purposes and values for condemnation. I do not know could enumerate them all right here, but there is a difference. I do not think that some items would be given as full weight in a rate case as they would in a purchase case.

Another distinction is that in a rate case we would take into consideration that the property had been properly maintained. In my judgment, the full value is the basis for rates; whereas in a purchase case the value less depreciation would be the basis.

Chairman Kutz: You would not consider depreciation in a rate-making case, but would deduct depreciation in a purchase case?

Mr. Almert: There are conditions in which I would consider depreciation in a rate case. If the property had not been properly maintained, and if the earnings were sufficient so that the property could have been and should have been kept up, but was not, I should consider depreciation; but if the property has been fully maintained, so that all reasonable expenditures have been made to maintain the property to give good service, then I would not consider depreciation.

In my judgment the property has been fully maintained. By that I mean that all amounts that good business would dictate should be spent to maintain the property to render continuous un-
835 interrupted service have been and are being spent to maintain the property so that it is rendering service which would be as good as a brand new property could render, and that there is no case which has come under my observation where anyone could reasonably say that there should be any deduction for deferred depreciation.

The witness started to make an estimate of accrued depreciation on the items of property of the Potomac Electric Power Company and his forms provided for the noting of the condition of poles and cross

arms and thing- of that kind as the inventory was being made. At the same time he personally visited the power plants and substations while that work was going on; but as he went into it he found that the state of maintenance of the property was such that it was a waste of time and money to carry those out.

I was satisfied, from examination of the books, with the amount of money they were spending for maintenance and the condition I found the property in, that according to my belief there should be no deduction for that purpose, and I eliminated further consideration of that item.

That he could give the Commission no information as to accrued depreciation on the various items of property.

I may explain that. Take a given pole, standing on any street: if we consider that that pole when it was brand new cost $15, set up, has been in there for a period of five years, and the deterioration due to age and use is such that the pole in another five years, no doubt, would have to be replaced; but, as it stands, it is rendering 100 per cent service value, and when that pole breaks or is struck by lightning or otherwise incapacitated, it will be replaced. The poles do not go out together. One goes out here, and one there, for one purpose or another; and as the needs come about they are taken care of promptly by the company, and I do not consider that there is any lessening in worth of the property from a service-rendering standpoint. So, if you consider it from that standpoint, I should say that there is no depreciation.

But, viewed from the standpoint of what amount should be included in operating expenses to make good the loss due to age and use of the company's investment in public service, that is an entirely different matter. I do not want to say that is not important and should not be taken into consideration, but it has nothing to do with the hearing in this case, as I understand it. * * * In a purchase case the situation would be different, I take it. There we would look into not only the service-rendering value of the property under the rate prescribed, but we would also take into consideration there the physical condition of the property or that lessening in worth below its cost.

The whole situation would be changed from a sales standpoint, by reason of the necessity to take into consideration the earning capacity of the property, which has not been taken into consideration at all * * * and in this development cost computation, in order to eliminate a discussion or an objection to the basis of computation there, in considering earnings, the present earnings of the company should not be included. That would be reasoning in a circle. I have modified the Alvord method to the extent of considering that the investor is entitled to an 8 per cent return on his money from the time it is invested.

The item of property rights in easements is not included anywhere else in my estimate and that brings the total up to $23,235,387.67.

I think that is one of the elements which should be included in determining cost and value in a rate case.

836 The witness having in the foregoing evidence explained his investory and estimates of cost, the four volumes comprising this data were introduced and received in evidence and marked Almert Exhibits 6, 7, 8, and 9, the same now being designated, respectively, Volumes 1, 2, 3 and 4, entitled "Report on cost of reproduction of Potomac Electric Power Company, property in the District of Columbia as of July 1, 1916. By Harold Almert, consulting engineer, Chicago."

Mr. Barbour: Are the figures, statements, estimates and final figures as shown by that report true, fair and just, to the best of your knowledge and belief?

Mr. Almert: Yes, sir.

Mr. Barbour: You assume responsibility for the fairness and accuracy and justice of the statements and conclusions therein stated?

Mr. Almert: I do.

The same was then received without any objection on the part of counsel for the Commission.

Mr. Barbour: These volumes are to be filed as part of the original record, and if you desire an additional set, Mr. Syme, we will endeavor to supply it. We do not want to part with those, but they are at the service of the Commission or any of its employes who may desire to have access to them.

Chairman Kutz: I think the Commission would like to have, all told, three copies.

Mr. Barbour: You do not want them permanently in your files?

Chairman Kutz: No; just until the cross examination.

Mr. Barbour: I think that we can arrange that so that, in addition to the official records, there will be two others loaned to the Commission for their use * * *

Now, Mr. Almert, did you attempt or have you attempted to have made any examination of the report of Mr. Pillsbury, as submitted to this Commission and as introduced in evidence here, for the purpose of ascertaining whether or not it contained any omissions and errors as to quantities of material, as of July 1, 1914?

Mr. Almert: I di-. We—I say "we"—my staff and myself did not make any valuation as of July 1, 1914, but when Mr. Pillsbury's report was presented we reviewed it as quickly as possible, and noted, first, the apparent differences between his quantities and the quantities in my inventory, which we compared, and also the total prices in his report—extended prices—which we thought were out of line; and when we found an item that was of sufficient magnitude to go further into it we modified our prices so that we would reach them at what were the probable prices as of July 1, such as his reported purported to be, and then noted those errors as omissions, as we saw them, and put them in the form of a series of letters which were transmitted to the Commission. Of course, time did not permit us to go thoroughly into it with a fine tooth comb, and we took only such errors as were apparent, errors of sums like $200 or over. Occasionally we would run into one smaller in amount in looking for one of $200, and that would be given consideration.

Mr. Barbour: But you did not make a complete check?

837 Mr. Almert: No, sir.

Mr. Barbour: But only of the items which appeared to be of larger magnitude, either as to quantity or price?

Mr. Almert: Yes, sir. Frequently there would be an item in which the difference was large between us in quantity, but the amount would be less than $200, perhaps.

Mr. Barbour: Now, Mr. Chairman, I would like to introduce in evidence those original letters. It will not be necessary to have them re-written here. I expect we had better state the date of each of the letters, though. First there is the letter of July 28, 1916, which is an eight-page letter dealing with buildings.

Mr. Almert: It includes also power plant.

Mr. Barbour: Buildings. You sent that letter to the Commission, pointing out these errors?

Mr. Almert: Yes, sir.

Mr. Barbour: On August 4, 1916, did you send another statement of errors and omissions on buildings, which letter comprised six pages?

Mr. Almert: Yes, sir.

Mr. Barbour: And on September the 8th, did you transmit to the Commission a five-page letter on equipment?

Mr. Almert: Yes, sir.

Mr. Barbour: And on September the 11th, did you transmit another letter comprising four pages on power plant equipment?

Mr. Almert: Yes, sir.

Mr. Barbour: On September the 12th, did you transmit a three-page letter on the subject of miscellaneous property?

Mr. Almert: Yes, sir.

Mr. Barbour: On October 20th, did you transmit an eight-page letter on transmission and distribution systems?

Mr. Almert: Yes, sir.

Mr. Barbour: On October 30, did you in like manner transmit to the Commission a three-page letter on transmission and distribution system?

Mr. Almert: Yes, sir.

Mr. Barbour: It is understood now, I believe, that the originals of those letters shall be considered in evidence, Mr. Chairman?

Chairman Kutz: Yes.

Mr. Syme: Oh, yes, indeed.

Mr. Barbour: To the best of your knowledge and belief, Mr. Almert, are the errors and omissions pointed out in those letters real errors and omissions, to the prejudice of the Potomac

838 Electric Power Company?

Mr. Almert: Yes, sir. We have had conferences on some of the matters——

Mr. Barbour (interposing): You are just getting a little ahead, I think, Mr. Almert. These errors pointed out in these letters are real errors, to you- best knowledge and belief, to the prejudice of the company, both as to quantity and prices?

Mr. Almert: Yes, sir.

Mr. Barbour: What prices are you trying to arrive at there? Are they prices which you applied in 1916, or, as near as you could get it, comparable prices as of July 1, 1914?

Mr. Almert: They are not the prices which we used in 1916. They are the prices which I believe Mr. Pillsbury should have used as of the date of his report, July 1, 1914.

Mr. Barbour: Now, I will ask you to state what effort has been made, if any, to check up those error sheets, with the Commission or any of its staff.

Mr. Almert: Agreeable to the views of the Commission, a series of conferences were had between Mr. Kappeyne, of the Commission, Mr. Cooper, of the Commission, and Mr. Williams, of my staff; the intent being to cover both quantities and unit prices, but to facilitate matters the consideration of quantities was taken up first, and wherever prices came into consideration it was left for future consideration.

These conferences developed that some of the differences noted by me in my communications to the Commission were apparent differences only. Those cases, I think, were relatively few. The others developed that there were real differences. Some of them were admitted verbally, and others were partially determined, and others were not reached at all.

Some three weeks were devoted to this work, but it was apparent that the Commission's staff had other duties to perform, and several days would elapse at times when they were unable to confer with Mr. Williams, or they were unable to get together. This matter has since been taken up, and the exact reason for not getting together is not apparent; but Mr. Williams made every reasonable effort to get into touch with the Commission's staff to further compare these.. It showed, however, to my mind, conclusively that to take all the differences throughout the entire report and adjust them even on quantities along, to say nothing of attempting to determine the differences on unit prices, would be an interminable job that would consume a prohibitive amount of time and expense.

Mr. Barbour: Did Mr. Williams make a written report to you as a result of his conferences with Mr. Kappeyne?

Mr. Almert: Yes, sir; he wrote me a summary of their conferences on October 28th, that is a review of all of the results of their conferences, but which covered purely quantities on structures.

Mr. Barbour: Have you that report?

Mr. Almert (Continuing): —and not all of those.

Mr. Barbour: Have you that report, or a copy of it?

Mr. Almert: Yes, sir (producing paper).

Mr. Barbour: Mr. Chairman, we now offer that report in evidence.

839 Chairman Kutz: Is it approved by the witness?

Mr. Barbour: Is that approved by you?

Mr. Almert: Yes, sir.

Chairman Kutz: You accept the responsibility for it?

Mr. Almert: Yes, sir. I was here, Mr. Chairman, not all of the

time, but most of the time during the period the conferences were going on, and Mr. Williams reported daily to me, when I was here, the result of their conferences. At the conclusion of them I asked him to summarize them in a letter. I have read that letter several times, and I find that his summary is right in line with his daily reports to me.

Mr. Barbour: Have you stated anything in the record as to Mr. Williams' qualifications?

Mr. Almert: I think that in the matter of structures I include Mr. Williams as one of the men on the staff. I am not positive as to that.

Mr. Barbour: I will be glad if you will state just what experience he has had.

Mr. Almert: I have not that detailed experience of Mr. Williams in the volume here with me; but I can say, briefly, that Mr. Williams is a mechanical engineer, who for a number of years was in entire charge of all the field work of the firm of Coates & Burchard, of Chicago, appraisal engineers, who value many millions of dollars of industrial properties each year for various purposes, and I think he was with them for either seven or nine years, and that he had practical building construction experience before that, and has been with me for over two years, engaged in similar lines of work. He is a man that I think is thoroughly competent, and I think that will be borne out by Mr. Kappeyne and other members of the Commission in their conferences with him—that he is a thoroughly practical man.

Mr. Syme: I think I shall object to this letter from Mr. Williams to Mr. Almert. It deals entirely with matters that were covered by him and Mr. Kappeyne and Mr. Cooper. It is apparently a private communication to Mr. Almert, and the matters and things therein contained should be testified to by Mr. Williams, if by anybody, because they apparently involve the differences between the quantities the Company claims and the quantities we claim, as shown in our report. The letter also purports to say that certain things were conceded, at one place or another. Mr. Almert cannot testify to any of the facts set forth in this letter at all. He does not know anything about them of personal knowledge.

Mr. Almert: I do not think that is true.

Mr. Syme: I think it is entirely a different situation from that where he is making an inventory and where he is compelled to rely upon the judgment of his subordinates. This (referring to letter) is a statement of facts, as a result of conferences had by one of his employes with two of our officers.

Mr. Barbour: One of them was Mr. Kappeyne, who is in the room now, and who was designated, I understand, by the Commission for that purpose; and this is the report of a subordinate to his superior, who directed him to do it, as to the results of that method of getting at the matter.

840 Chairman Kutz: He expresses opinions on certain subjects, does he not?

Mr. Barbour: I think he only states facts. Of course, that does not close the mouth of Mr. Kappeyne to make his report as to similar matters. It was contemplated originally that they would join in a report, I believe.

Mr. Syme: I think the wise thing would be to have Mr. Kappeyne take this letter and go through it and see if it is right. If it is, I will not have any objection to it.

Chairman Kutz: We will reserve a decision on it until there has been an opportunity to determine the character of it.

Mr. Barbour: Just mark it, for identification, Almert Exhibit No. 10.

(Further hearing of this testimony was adjourned from November 29th to December 8th.)

841 Contractor's Fee—Almert.

Further hearing of this testimony was adjourned from November 29 to December 8th, to give counsel for the Commission opportunity to prepare to cross-examine the witness and his examination was resumed on December 8, 1916, and his direct examination continued—pages 3770–3772—and consisted largely in corrections in his testimony, and thereafter continued as follows as to contractor's fee.

It occurred to me during the examination that the better way to explain this would be to make up a schedule similar to what I had for administration Force and Engineering Force to show what the expense of the general contractor would be, but my time has been very limited between the hearings, and in addition to that it would be impracticable to make that up, on further consideration, for the reason that the large contracting firms such as would undertake this are in business doing work in various parts of the country, and to set up and show what their proportional cost on this particular undertaking would be I would have to make a hypothetical set-up on all of their business, so that I think it will suffice to explain that in general it is intended to show, and is a fact, that any contracting firms of the character that will take work of this kind maintain permanently a large organization with expensive officers' quarters, and have continually on their staff commercial engineers or business-getters who travel over the country soliciting work, which is usually charged to an item called "Endeavor," and where a contract is secured a proportional part of the compensation received for the work is applied on that account for the constant expense of maintaining men of that character in connection with the head office. Likewise, the rent, light, janitor service, stationery, printing, and supplies, are assigned not only to the business-getting portion of the organization but the balance. Their advertising and executive branch of the organization, which is not charged directly to any one job, but must be apportioned over all of the work in hand, must come out of this compensation of 10 per cent for such work. There are also the principal officers of a company of that character such

as its president and several vice-presidents, and sometimes it is large enough to have a chairman of the board of directors, and they employ considerable legal talent in connection with the writing and approving of contracts and any litigation, and similar costs that cannot be billed directly to one job, but for which all jobs have to provide a proportionate share of the expense. The amount is usually prorated against the compensation received on the contracts in hand.

In addition to the above they have the expense of lost time due to vacations and illnesses, and things of that character, and the idle time of their engineering force while not engaged, and which must be cared and reimbursed for out of a cost of this character, so while it is difficult to take a general contractor and show what it is for one particular job, it is a generally understood and accepted percentage to use, and a very customary one.

Take my old firm of Byllesby & Company that used to do work of this character for their own properties on a 5 per cent basis, and found that they lost money on it and were obliged to increase that sum to 7½ per cent, and in so doing their principal intent was to serve their own properties with a very small margin of profit.

That in making up his estimates of reproduction cost he has given no effect to the relation existing between the Potomac Electric Power Company and the Washington Railway & Electric Company. He thinks that that relation constitutes an element of value, of very considerable value, but he has not included it in any of his determinations.

842 Working Capital—Almert.

He knows it is a fact that the Potomac Electric Power Company, in its endeavor to extend its business, has a considerable amount of capital invested in electrical appliances of different kinds which it sells to its customers on the installment plan, payable in small installments, either monthly or weekly. He knows they have many thousands of dollars invested in that way in the purchase of appliances to encourage the use of electrical energy, which appliances they sell to customers on the long-term payment plan so that their money is tied up for a very material period, but he has not included anything for that consideration in his set-up for Working Capital, and this will involve the necessity for additional working capital; that the real estate cost which he has included in his estimate are those which the real estate men furnished, and which he has learned from the cross-examination did not take into consideration any element of value for the peculiar adaptability of the piece of property for the use to which it is now put. He thinks it is an element which should be given consideration.

843 Supplies—Almert.

The amount included for coal on hand in supplies was ascertained by an examination of the books of the company, and the balance

of coal on hand at the end of each month for the twelve months ended June 30, 1916, was determined and found to amount to $257,520.23, making an average monthly balance of coal on hand of $21,460.02. This is an average of the amount of coal on hand each month during the twelve months and covers both short and long days, and there is no seasonal laying in of coal.

844 There is appended here a comparative statement marked "Potomac Electric Power Company Comparison of Reproduction Cost, Appendix II," "Sheet 1" and "Sheet 2" which shows the allowances made in the report of Mr. Pillsbury; the claims of the company as set out in the report of Mr. Almert, and the final findings of the Commission as confirmed by the Court, respectively, compiled as nearly as possible upon a comparative basis.

(Here follows Appendix II, marked pages 845 and 846.)

I. C. C. Accounts.	C
300 Land devoted to Electric Operation	$45
Additions to June 30, 1916	
	45
305 General Structures	9
306 General Equipment	7
Commission Adjustment—5%	
Additions to June 30, 1916	5
	23
308 Power Plant Buildings	55
309 Furnaces, Boilers and Accessories	60
310 Steam Engines	53
314 Electric Generators	25
315 Accessory Electric Power Equipment	8
316 Miscellaneous Power Plant Equipment	4
Commission Adjustment—5%	10
Additions to June 30, 1916	3
	2,24
317 Substation Buildings	12
318 Substation Equipment	96
Commission Adjustment—5%	5
Additions to June 30, 1916	9
	1,23
319 Poles and Fixtures	8
320 Underground Conduits	1,60
321 Transmission System	38
322 Distribution System	1,33
323 Line Transformers and Devices	12
Commission Adjustment—5%	17
Additions to June 30, 1916	24
	3,95

APPENDIX II.

Sheet 1.

Potomac Electric Power Company.

Comparison of Reproduction Cost.

...unts.	Commission.	Pillsbury.	Almert.	Notes.
...peration.....	$452,468.00(1)	433,792.00	830,967.44	(1) Does not include Graceland Cemetery property.
.....	33.63	33.63	.....	
	452,501.63	433,825.63	830,967.44	
.....	98,748.71	96,135.00	197,121.00	
.....	72,131.52	72,131.52	97,185.00	
.....	8,544.00	.....	.....	
.....	52,187.58	52,187.58	.....	
	231,611.81	220,454.10	294,306.01	
.....	553,018.05	532,752.00	725,973.00	
...ssories.....	609,019.46	609,019.46	797,295.23	
.....	555,041.00	555,041.00	1,053,658.67	
.....	254,814.68	254,814.68	150,856.36	
...Equipment.....	85,396.98	85,396.98	175,534.74	
...Equipment.....	45,838.54	25,883.90	69,471.86	
.....	105,156.44	.....	.....	
.....	38,475.65	38,475.65	33,821.76(2)	(2) Represents Bennings Extension to June 30, 1916, not distributed by Almert over I. C. C. Accounts, but included in his total of $300,000.00 under the head of "Bennings Extension."
	2,246,760.80	2,101,383.67	3,006,411.62	
.....	121,754.26	120,627.00	172,588.00	
.....	969,826.95	967,178.87	1,378,465.08	
.....	54,579.06	.....	.....	
.....	90,820.30	90,820.30	.....	
	1,236,980.57	1,178,626.17	1,551,053.08	
.....	88,030.68	88,030.68	158,908.43	
.....	1,605,304.87	1,605,304.87	2,120,963.50	
.....	386,466.56	386,466.56	850,587.84	
.....	1,332,119.44	1,332,119.44	2,167,929.57	
...ices.....	128,082.60	128,082.60	156,142.21	
.....	177,000.21	.....	.....	
.....	240,439.90	240,439.90	.....	
	3,957,444.26	3,780,444.05	5,454,531.55	

325 Electric Meters in service	292,057.71(3)	292,057.71	362,038.75	(3) Includes meters in stock $17,144.34 as well as meters in service.
326 Electric Meter Installation	20,746.44	20,746.44	33,880.16	
Commission Adjustment—5%	37,654.61	.....	.....	
Additions to June 30, 1916	124,619.17	124,619.17	.....	
	915,365.94	877,711.33	1,054,093.65	
327 Street Park Lighting System	301,569.30	301,569.30	589,855.84	
328 Commercial Arc Lamps in Service	7,548.57(4)	8,548.57	4,578.95	(4) Includes lamps in stock as well as in service.
329 Glower Lamps in Service	1,805.88(4)	1,805.88	296.78	
Commission Adjustment—5%	15,546.19	.....	.....	
Additions to June 30, 1916	50,313.27	50,313.27	.....	
	376,783.21	361,237.02	594,731.57	
331 Electric Tools and Implements	8,263.35	6,194.39	8,263.35	
332 Electric Laboratory Equipment	16,850.73	9,593.93	17,385.20	
333 Other Tangible Electric Capital (Electric Signs)	3,423.95	3,423.95	6,004.32	
Commission Adjustment—5%	1,426.90	.....	.....	
Additions to June 30, 1916	1,746.14	1,746.14	.....	
	31,711.07	20,958.41	31,652.87	
	9,449,159.29	8,974,640.38	12,817,947.79	
Miscellaneous Construction Expenditures (Opinion pages 68 and 69)	208,278.00	203,840.00	Included by Almert in Base costs	
Law Expenditures during Construction (Opinion pages 68)	65,000.00	65,000.00		
Insurance during Construction (Opinion page 68)	9,908.00	9,908.00		
Commission Adjustment—5% (See note 5)	24,659.30	.....		(5) Includes an arbitrary adjustment of $10,000.00. See Opinion, pages 62 and 63.
Deduct Engineering not included by Pillsbury or Commission	.....	.....	469,075.81	
Sub Total	9,757,004.59	9,253,388.38	12,348,871.98	

Sheet 2.

Potomac Electric Power Company.

Comparison of Reproduction Cost.

I. C. C. Accounts.	Commission.	Pillsbury.	Almert.	
General Overheads During Construction:				
334—Engineering and Superintendence (See Table 28 Opinion)	$469,791.00	466,750.00	589,075.81(6)	(6) $469,075.81 of th
338—Administration (See Table 28 of P. U. C. Opinion	158,605.00	158,605.00	180,000.00	Balance of $1
Commission Adjustment—5%	31,419.80	.....	.....	title "Enginee
Additions to June 30, 1916	6,537.70	6,537.70	.....	See page 1219
	$666,353.50	631,892.70	769,075.81	
337—Taxes	40,079.00	39,211.00	131,271.00	
339—Interest	658,160.00	652,352.00	1,791,644.00	
Commission Adjustment—5%	34,911.95	.....	.....	
Additions to June 30, 1916	(Not available)		.....	
	$733,150.95	691,563.00	1,922,915.00	
Total Overheads During Construction	$1,399,504.45	1,323,455.70	2,691,990.81	
Property Rights in Easements	.....	.....	2,500,000.00	
Development Cost	.....	.....	2,155,323.00	
Working Capital (Including Supplies)	263,893.08(7)	263,893.08	550,481.60	(7) Does not include $17,144.34 and
	$263,893.08	263,893.08	5,165,804.60	
General Overheads Preceding Construction:				
Organization	250,000.00	.....	262,542.00	
Financing	.....	.....	75,000.00(8)	(8) $15,000.00 of this a
Preliminary Operation	25,000.00	.....	50,000.00	the account, "E
Preorganization Expense	.....	.....	25,000.00	spection."
Compensation to Conceivers	.....	.....	650,000.00	
Brokerage and Commissions	.....	.....	700,000.00	
Total Overheads Preceding Construction	$275,000.00	.....	1,762,542.00	
Great Falls Water Power Site	$.....	.....	1,000,000.00	
Total June 30th, 1916	$11,695,402.12	10,840,737.16	22,969,209.39	(9) Balance of Almert's under the head
Additions June 30 to December 31, 1916:				note 2.
Repping Extension	234,895.75	234,895.75	266,178.24(9)	Commission fair value in D. C.

APPENDIX II.

Sheet 2.

Potomac Electric Power Company.

Comparison of Reproduction Cost.

s.	Commission.	Pillsbury.	Almert.	Notes.
ion:				
tendence (See Table 28				
.....	$469,791.00	466,750.00	589,075.81(6)	(6) $469,075.81 of this amount deducted from base costs. Balance of $120,000 included by Almert under title "Engineering, Supervision and Inspection." See page 1219 Almert Report.
e 28 of P. U. C. Opinion	158,605.00	158,605.00	180,000.00	
.....	31,419.80	.....	.....	
.....	6,537.70	6,537.70	.....	
	$666,353.50	631,892.70	769,075.81	
.....	40,079.00	39,211.00	131,271.00	
.....	658,160.00	652,352.00	1,791,644.00	
.....	34,911.95	.....	.....	
.....	(Not available)		.....	
	$733,150.95	691,563.00	1,922,915.00	
Construction.....	$1,399,504.45	1,323,455.70	2,691,990.81	
....	.....	.....	2,500,000.00	
.....	.....	.....	2,155,323.00	
s).....	263,893.08(7)	263,893.08	550,481.60	(7) Does not include Meters in stock amounting to $17,144.34 and certain Lamps in stock.
	$263,893.08	263,893.08	5,165,804.60	
uction:				
.....	250,000.00	.....	262,542.00	
.....	.....	.....	75,000.00(8)	(8) $15,000.00 of this amount was included by Almert in the account, "Engineering, Supervision and Inspection."
.....	25,000.00	.....	50,000.00	
.....	.....	.....	25,000.00	
.....	.....	.....	650,000.00	
.....	.....	.....	700,000.00	
ng Construction.....	$275,000.00	.....	1,762,542.00	
.....	$.....	.....	1,000,000.00	
.....	$11,695,402.12	10,840,737.16	22,969,209.39	(9) Balance of Almert's estimate of $300,000.00 shown under the head of "Benning Extension." See note 2.

1916: Commission fair

847 Cross-examination—Almert:

Mr. Syme: You state in paragraph 3, page 1227, of your report, Mr. Almert, "It is a known fact that money must be spent for the purpose of securing favorable action and for expediting action both through publicity campaigns and entertaining those whose influence would be helpful; entertaining those whose influence would be helpful and by indirect and sometimes even by direct contributions of cash, stock and other considerations for assistance." Of this $262,000 which is to be charged to this plant and on which the people here or the consumers here must pay $15,000 apparently in perpetuity, what portion of it was to be spent for entertainment?

Mr. Almert: I do not believe, Mr. Syme, that I could subdivide this 2 per cent, or $262,000, into those various elements to any degree that would be satisfactory to you. They are, as I have stated I think on direct examination, items which, a great many of them, were incurred before the actual starting of business by the Company, and are not set out in detail on the books, and, therefore, are very difficult to give the detail on.

Mr. Syme: We haven't got any books. We haven't got any detail. We are erecting now a plant under the conditions I have indicated to you, and which you have acquiesced in, which we have charged in the first instance $260,000 odd for the purpose, partly, at least, of entertaining somebody. You knew that there was only one way to get authority for this plant to be erected in Washington, did you not, and that was either from Congress or this Commission?

Mr. Almert: Yes, sir.

Mr. Syme: Whom did you propose to entertain, whether it was a large or a small item, in order to get this concession granted?

Mr. Almert: It may be, Mr. Syme, none of the Congressmen and none of the Commissioners, but it may be those who have a standing in the community and influence that do not feel sufficiently interested to go out of their way to assist in this matter, recognizing that there is a need, but having no interest will not take any interest. It was for entertaining those who may urge the granting of such a franchise, and when I say that I do not mean in any corrupt manner. Anyone that has been engaged in this class of work knows that a proposition of merit presented in a few words is not going to see itself through to a satisfactory conclusion in the granting of anything; that there are always influential men standing in the way either in obstructing the granting of a thing that should be granted or who are necessary to help it through to its granting, that demand to be entertained or compensated for permitting or assisting in the granting of that which should go through theoretically without any effort or cost.

It might be necessary to take the owners of some newspapers to dinner and to explain what the needs are for this situation: to lay it before them that they might be posted as to what was going on and what the needs are that they might, through their way of forming public opinion, set forth that this need should be helped and should

be allowed. Perhaps the entertaining part of it is a very small amount. Maybe it is large.

Mr. Syme: It is in there. It is to be done for the purpose of influencing Congress? This entertaining is to be done for the purpose of influencing Congress, isn't it?

Mr. Almert: Yes, but in no improper way, Mr. Syme.

Mr. Syme: This city and this District is the direct ward of Congress and is right under Congress, isn't it?

848 Mr. Almert: Yes, sir.

Mr. Syme: And questions of its needs and necessities are largely a matter of Congressional observation, are they not?

Mr. Almert: Yes, sir.

Mr. Syme: We are assuming the erection of a plant in a city of 300,000 people which, on the first of July, 1918, did not have any electric facilities light, power, energy, or anything else, when in all the rest of the civilized world and all the rest of the United States there is scarcely a city above or under 10,000 that hasn't got it. How much do you suppose should be allowed to be spent in either inducing newspapers or having newspapers present such a proposition as that so that Congress might favorably consider it?

Mr. Almert: If you are going to take the attitude of saying that it is buying newspapers you are going outside of what I have said, and I will not answer. I realize fully when I put that wording in there that that would be your attitude. I did not intend anything corrupt with regard to either this Commission or Congress. When I say "entertaining of a newspaper man," whether it is to sell him paper for the manufacture of his output, to sell him type or anything of that nature, it is quite natural, logical and permissible that instead of simply going to see him in his office when he is busy, you take him at a time when he can go with you to dinner or some place where you can, under more favorable circumstances, obtain his time and attention, and I do not think anyone should for a moment interpret that as being "buying a newspaper."

Chairman Kutz: Do you think that same explanation applies to the statement "and sometimes even by direct contribution of cash, stock and other consideration?

Mr. Almert: Yes, sir, the same explanation. When I say that, Mr. Chairman, I do not refer to the payment to a Commissioner or to a Member of Congress of stock, cash or commissions, but there are men who make a business of being in a position to command attention or secure appointment for favorable attention to that sort of thing, or who are in a position to stand in the way of securing favorable attention of appointments that have to be taken care of in securing things of that kind.

Chairman Kutz: You do not consider contributions of stock or cash as in the nature of a bribe?

Mr. Almert: It was never my intention for a moment in the wording of this here that anyone who had the right, by their election by the people, to the granting of this right, should ever profit by such a thing as this; but there might be some influential person who could

make an appointment with someone in public office who would have to be compensated for making that appointment?

Mr. Syme: Then your theory of whatever expense you were going to go to in entertaining was to get hold of some influential and helpful people either in Washington or other places who might present this matter to Members of Congress in order that favorable action might be had?

Mr. Almert: Yes sir. The granting of a thing of this kind is for a perfectly legal purpose. * * * But effort is required to get action, and that action is to be obtained not through the result of one man's work but a number of men's work and over a period of time to secure action, and someone has got to do that class of work. The conceivers of the project may be from remote parts of the country, and seeing the opportunity here when they come here, they look up and seek men who have a standing and acquaintance, and among those are very frequently, and, in fact, more so than others, lawyers, and in the measure of the compensation for legal and organization expenses here the compensation to the lawyer, in a great many cases, is not only for the actual legal services which he renders in connection with the examination and preparation of papers, but also for his standing in the community, for the very thing which we are talking about, in securing probable entre and consideration.

849 The ultimate object was not to influence members of Congress, if by that you mean corruptly. To induce them and persuade them to the getting of proper attention and action. I am not familiar with the methods of Congress in the granting of such things, but whoever they are. I am basing this, Mr. Syme, on my experience all over the country. It is true that we have a somewhat different situation here in that this is not a city council which I generally have to deal with, but I see no material difference.

Chairman Kutz: In your judgment would it cost more or less to get such a franchise here than elsewhere?

Mr. Almert: I should say more here because there are more men to deal with.

Commissioner Brownlow: Do you think you would have to employ more lobbyists here than you would in Minneapolis, say, or Buffalo?

Mr. Almert: A city council consists, dependent entirely, of course, upon the size of the city, of anywhere from a dozen to thirty men, perhaps, and there are more members of the House here to be seen. I do not know that you would call it lobbying. It may be. I have never had any experience in connection with that part of it.

Mr. Syme: The usual way of doing it, according to your experience, in order to obtain these rights to the use of a city's streets for the purpose of supplying its citizens with electrical energy in one form or another, is to set up in a company of this size a fund of $200,000, or $300,000, for the purpose of entertaining people and getting next to those whom you think would be helpful for you to obtain it?

Mr. Almert: If I might answer, a small portion of this amount is paid for just the purpose which you spoke of, but I could not tell you how small; I could not separate it. * * * I have not endeavored

to work it out for this particular case, nor do I believe I would arrive at any better conclusion if I did. It is an amount which, in a great many other cases, has been shown to be a fair allowance for that purpose, and has been determined as being right and proper, and I do not think that anyone could put it right down to its original element and say how many dollars of it would be for entertainment and how much for the other purposes.

Commissioner Brownlow: How do you distinguish in actual method or concrete method between the indirect and the sometimes direct contributions of cash, stock and other considerations? What sort of a person of influence would get the indirect contributions of cash or stock?

Mr. Almert: The attorneys who, as I stated, are employed it may be for a two-fold purpose, one of preparing the legal papers and carrying on that portion of it, and also providing audiences and favorable attention for the consideration of the franchise, may be compensated indirectly by a promise of a part of the stock, a small portion of the stock in the company, which I consider is indirect, and the direct by the actual cash compensation which he gets for his services. * * * You may have to receive favorable consideration from one man who does not want to have anything to do with it, and whose influence is necessary. The man retained to obtain favorable attention from that one may not be able to do so. He may have to do it indirectly by getting some acquaintance of his to approach the man. There are a number of cases, and if you want them I can state them, where these allowances have been made. Take in the California decisions in Case No. 845, before the California Commission, the Central Pacific Railroad Company. In the reproduction cost of the company there 5 per cent was included for law expenses, and that is based on the physical cost of the property. In a very recent case before the Public Service Commission of Missouri, their case No. 1017, which is reported in 1915-C Edition of the Public Utilities Reports which the Commission has here, the Commercial Club v. the Missouri Public Utility Company, 2½ per cent was allowed for legal and organization expense. Those were rate making cases.

In the Consumers' Electric Light & Power Company case, before the Missouri Commission, their Case No. 956, 2 per cent was allowed.

850 In the Ocean County Gas Company case of New Jersey, their case No. 601, which is reported in the 1915-B volume of the Public Utilities Reports, an allowance of $4,000 was made for the obtaining of the franchise and the law expenditures during construction in that case on a value of $160,000, which amounts to 2½ per cent.

Mr. Syme: Did Mr. Pillsbury have a figure of $301,000 for the entertaining of anybody?

Mr. Almert: I do not think it is right for you to harp on that question in that way. I never stated that any such amount as this was spent in entertaining anybody. * * * Unless you depreciate the value of the attorneys in the case, most of it ought to go for entertaining and only $1.00 for them.

Mr. Pillsbury knows enough about this business to know in his own mind that is absolutely essential and necessary to get such a franchise and that it is honorable.

851 Conceiver's Compensation—Almert.

Mr. Syme: These conceivers are not to do anything with the property except to get somebody else to develop it, are they?

Mr. Almert: Some of them may stay in, their compensation being perhaps in securities, and they would stay in with the proposition, but whether they do or not, I think it is immaterial.

Mr. Syme: But this $650,000 hasn't anything to do with the development of the property? It is simply for some one who conceives the project and who does not do a lick of work in connection with it.

Mr. Almert: If you think the proper conception of the possibilities of a thing of this kind, the years of ground work perhaps that are necessary in order to bring it up so that it is possible, is not a lick of work, yes. If you do not consider that a lick of work, yes.

Mr. Syme: I can see where, perhaps, thirty years ago such a thing might have required a great deal of work to make it what you might call a going thing, but I cannot conceive that tomorrow, if the City of Baltimore were without an electric plant, how the mere conception of a plant on the part of anybody could possibly be worth over half a million dollars.

Mr. Almert: If you leave out of existence simply a distribution plant in a community you can find plenty of parallel cases where this thing is being done right along in the conception of economic consolidations of existing properties and the development of hydro-electric properties and various things which would be on a very comparable basis with this, and then we get into the realm of things that are real, that are parallel to this, and then you will find this item is very real and one in every day life.

In case No. 311, quoted in the 1915-F Volume of the Publi. Utility reports, the California & Southern Railway case, the Commission there allowed stock of a par value of $75,000, authorized to be issued for the promoters' services in projecting a railroad which could be financed for a sum not to exceed $750,000.

In the Rochester, Corning & Elmyra case that I have just referred to, the second district of New York commission there allowed five per cent.

I think I stated in my direct examination that in the case of the existing property at Elyria and Lorain, Ohio, that the conceiver of the projects there who brought about the consolidation of those properties and their physical connection, but who died before it was actually completed, the surrogate court of New York there insisted on the owners' payment of $45,000 to his estate before it would release the property which was in his name at that time, and that $45,000 was on something less than a million dollar property he had at that time, or a little less than five per cent in his case. That was a cash payment.

All other	141,101.34	141,101.34	141,101.34	1916.
Reproduction Cost in D. C. Dec. 31, 1916	$12,071,399.21	11,216,734.25	23,376,488.97	11,231,170.43

These final totals may be identified as follows:

Finding "2," page 103 of Opinion	11,090,228.78
Finding "9," page 104 of Opinion	981,170.49
	$12,071,399.21

Second Column, Table "19," page 58 of Opinion	10,235,563.82
Table 43, page 97 of Opinion	981,170.43
	$11,216,734.25

First Column Table "19," page 58 of Opinion	23,235,387.63
Additions to June 30 to Dec. 31, 1916 (Exclusive of Benning's Extension ([10])	141,101.34
	23,376,488.97

([01]) Benning Extension all included in Almert's Reproduction figures June 30, 1916. See note 2.

Witness does not think that the necessity for promoters to bring about this consolidation and interest capital in it, is done away with by any commission regulation or anything of that kind. In fact, if they were to legislate against it that would not stop its going on, or if it did stop its going on then new properties would not come into being. There is a law in Ohio that stock in public utility corporations cannot be issued except for full value, but that does not make it possible for the utilities to obtain money on that basis even though there is a statute on the books to that effect. I do not know of anything of that kind to reflect against this item here, which is very real and is encountered, so far as I know, in connection with every public utility property that has come into being.

Mr. Syme: What intimate knowledge did you have of the cost of the different things which went into it—personal knowledge?

Mr. Almert: We had constantly, at H. M. Byllesby & Company's, a revising of our current prices, both from the standpoint of inquiries which were being made from month to month by my department and the purchasing department of H. M. Byllesby & Company, who were constructing one to two billion dollars of properties a month, buying continuously apparatus and supplies of different character; and we were in daily touch with changes in prices and keeping them up to date continuously. I think we had the latest information
852 at all times, as well as historical information regarding cost.

I want to say, too Mr. Syme, that, to the best of my knowledge and belief, from an investigation I made while at leisure about a year ago, I think that I have put my signature on the approval of nearly half a billion dollars of this class of securities, and I do not know of a single, solitary case where the interest has been defaulted.

In the Lake Forest Water Works case after the City and the Company had put in their case, the Utilities Commission of the city announced that they intended to put their staff on, and the witness went there for the purpose of cross examining that staff as to the soundness of their valuation. "I had no intent or desire to defeat; but simply to ascertain the correctness of their work. I was in conference between the attorneys for the City and for the company. I was agreed upon to conduct that examination.

Mr. Syme: Certainly; and you were cross examining the witnesses. You were on the opposite side from the witnesses for the Public Service Commission, weren't you?

Mr. Almert: The Public Service witnesses were not on the opposite side; they were the neutral people in the case. They were the arbitrators, so to speak, that is, the Commission was. The Commission's staff, after having the Company's and the City's valuations before them, made an examination of their own, based upon those two and an examination in the field.

Mr. Barbour: Do I understand that you were selected by those adverse interests to conduct this investigation?

Mr. Almert: Yes, sir. I was there with the City's and the Company's attorneys, and conducted that examination.

Mr. Syme: Were you paid by the company?

Mr. Almert: I don't know which I was paid by there.

Mr. Syme: You know whom you were employed by.

Mr. Almert: I say I was there at a conference. Yes, I was paid by the company.

Mr. Syme: Now then, I believe that in 1914 you were retained by the Washington Railway & Electric Company for the purpose of the valuation here? What time of that year did you come down here?

Mr. Almert: I was here, first, early in the year; I think about February or March or thereabouts, and then several months elapsed before I heard anything of the matter again. I was sent for again, I think, in the latter part of May. Final arrangements were made for the first week in June.

Mr. King showed me a copy of the act and said "It appears from that that a valuation of the properties will have to be made." I learned that the Commission was going to make a valuation of these properties after that date. I did not make any serious study of the act at the beginning, only sufficient to satisfy myself that an inventory of the property was necessary and that it would take considerable time to start that and get it under way; and I thought that later I would have an opportunity to study the act. I started to organize for the purpose of the inventory about the middle of July, 1914. I do not think the whole property was completely inventoried by July, 1915. The inventory of the Potomac Electric Power Company was completed about November, 1915. I started out to make it as of July 1, 1915, and did not complete it in a time which seemed to me to make it up to date for the purpose, as I understood it, and later changed the date. I had completed a great many cost studies on the various parts and that sort of thing, without applying them up to that time. If my memory serves me correctly, we had not applied prices as of that time. I had five heads of departments, employed by me, from my staff in Chicago; and the balance of the men were employed here locally. They varied, beginning, I think, with twelve the first month I was there, and increasing and reaching about ninety men. He got the schedules and prices from the Commission—the reproduction cost and accounting cost in May, 1916. At that time
853 we were doing the work of making these inventories, and adjusting those costs both in Chicago and here, depending on whether the individual working on the work had other work that would take part of his time. Most of it was done here, but a share of it was done in Chicago.

We were not waiting to get your schedules and figures to see what they were, before putting our own figures on, because from what I could expect, knowing who was directing the work, I did not think it would have any bearing on my report whatever.

Mr. Syme: In other words, indirectly, I suppose, you are referring to Dr. Bemis?

Mr. Almert: Or directly.

The witness before this hearing had never met Mr. Sangster. He knew Mr. Pillsbury and as far as his work was concerned, I expected it to be just as I found it to be. He is a highly reputable

engineer. Considering the time and the money he had at his disposal, I considered it good work. He had two years at his disposal but not all the money he wanted.

Mr. Syme: He has a- many engineers under him as you did, didn't he?

Mr. Almert: I could not say as to that.

Mr. Syme: You had only five, had you not?

Mr. Almert: I am talking about the number I had directly out of my office at Chicago. I had a great many more people employed on the work. Another thing you want to bear in mind, Mr. Syme, is that I was simply engaged on the Washington Railway, while Mr. Pillsbury's time had to be divided between that and the Capital Traction Company and the gas and light companies and everything else.

Mr. Syme: Whatever may have been your reason—lack of time or any other reason, or your disinclination to put any faith in what Dr. Bemis did, you did not complete your inventory and prices at all, then, up to May, 1916.

Mr. Almert: I do not believe there was anything complete at that time. We left the prices entirely open. I did not know what the date of the hearing was to be, and I considered that the valuation had to be as of the date of the hearing.

Chairman Kutz: What valuation would have had to be as of the date of the hearing?

Mr. Almert: I have already stated in my direct examination my interpretation of paragraphs 6, 7 and 8 of the act.

Mr. Syme: In the first place, then, you so arranged your inventory as of July 1, 1916, that there could be no really comparable basis as to items, and you arranged your date for the fixing of prices so that there could be, really, no basis for a comparison of prices?

Mr. Almert: I think that is a very unfair statement to make. I never had anything of that kind in mind.

Mr. Syme: I said that you fixed it there.

Mr. Almert: I understood your statement to be that I arranged it so that it could not be done. * * * I object seriously if you state that it was done with that intent. What I inferred from your question was that that was the intent, and I certainly had no such intent, nor any suggestion by the company or any one else made to me that such was the case. In fact, the reverse is true. My hope was that it would absolutely be comparable. My object in doing this class of work is to try to arrive at an adjustment of these things and facilitate the ascertainment of proper relations, and not to stand in the way of them.

854 The witness knew that the Commission's inventory was being made as of July 1, 1914, for three preceding years, but did not know that when he started, but sometime later.

Mr. Syme: It was not very much later, was it? Did you not see the correspondence here?

Mr. Almert: I may have, but I cannot say that I did. But be that as it may, it is my belief that the Commission would, from what

I recollect of other correspondence, bring it up to the date of the hearing, just as I intended to do. I had no knowledge whether you were going to project the construction into the future or the past, or as of such and such a year. I had no means of knowing that. I recollect seeing nothing of that correspondence. I did not pry into Mr. Pillsbury's figures any more than he did mine.

Mr. Syme: So, then, when did you first find out the period covered by our reconstruction report?

Mr. Almert: When I saw the report.

Mr. Syme: You never hea-d of it before that time?

Mr. Almert: No, sir. I incurred an expense of over $5,000 to analyze and make them comparable and try and adjust the differences; and my hope was that, with the Interstate Commerce Commission's classification of accounts before us, there would not be any material differences in the working out of the thing. But it appears that there are, and I think they were purely honest differences of interpretation in the way of doing the work. Had we accepted that same thing, I could not have taken the period you did; because that is not my belief of the thing to do. We have had the past, and my understanding is that the object of this hearing is to fix rates for the future and that, among other things which the Commission needs to have before it to determine value, is what would it come to reproduce this property. It seems to me that is a matter of the present and future and not of the past.

Mr. Syme: On the theory of fixing rates, supposing a property cost you, all told, including every legitimate cost, a million dollars; that was your actual cost——

Mr. Almert (interposing): All things that should be considered?

Mr. Syme: Yes, sir; and two years after, because of a rise in prices all over the country, occasioned by war or what not, this cost, because of the raised cost of things, would be two million dollars. On which basis, according to your judgment, should it be computed in a rate case?

Mr. Almert: That would not work out all at once, but would work out piecemeal. So, if that condition obtained over a number of years, I would eventually replace the property at the higher prices; so that the property I originally brought into being at a million dollars will cost me two million dollars.

Mr. Syme: If a property which you could have built two years ago for a million dollars would require two million dollars to reproduce, because of a war or some other thing increasing prices.

Mr. Almert: All things considered, cost and value; I do not say that the two million dollars is the figure, but all those things have to be taken into consideration, I take it.

Mr. Barbour: That is what the Minnesota Rate Case said.

Mr. Syme: That $2,000,000 would be the basis?

Mr. Barbour: The valuation at the time of the inquiry.

Mr. Syme: You use "valuation" in the sense that the Massachusetts Commission does.

855 Mr. Barbour: It was said that if the property had increased under private ownership, it was entitled to the benefit of it.

Mr. Bowen: The Court said that was the question before the Court, whether or not there was confiscation, and the Company was entitled to the value of the property at that time.

Mr. Syme: Then, we are in a place now where it appears that you did not know, and never did know until the time you got our schedules, as to the period that was supposed to have been covered by our reproduction cost?

Mr. Almert: I never knew that until I saw Mr. Pillsbury's report.

Mr. Syme: Neither Mr. King told you nor anybody else?

Mr. Almert: No one. I have not any idea that Mr. King knew it, and if he did he never told me, and nobody else ever told me.

Mr. Barbour: If there is any such correspondence, it has not been brought to our attention.

Mr. Syme: My impression is that the company was written a letter stating the date, I will look into it and see if there is a letter, I may be mistaken about it.

Mr. Barbour: We may be mistaken, too. We may have overlooked it.

This correspondence was later produced and is found in transcript beginning pages 3882 to 3884; also 3885.

June 12, 1914.

"GENTLEMEN:

"Inasmuch as the valuation which we are making of your property will be as of July 1, 1914, it is quite necessary that an inventory be taken of your stock of supplies as of that date. I would, therefore, suggest that you arrange to have a careful inventory made beginning on the morning of June 30th; this inventory to be made by several different men in the respective buildings or departments simultaneously. We would like to have one of our men accompany each of yours, making corresponding notes, and we assume that Mr. Almert will also wish to have a representative present with each party."

Company's Reply.

July 1, 1914.

"GENTLEMEN:

"We duly received letter dated June 12, 1914, from Mr. Charles S. Pillsbury, designating himself as chief engineer of valuation staff, and letter dated June 29, 1914, from Mr. Charles F. Turner, designating himself as head clerk of valuation staff, in regard to stock inventory. It is not practicable for us to take an inventory of our stock of supplies in the respective buildings or departments simultaneously, for the reason that we do not have an organization competent to do all this work at one time. To insure accuracy, we have found from practical experience that it is necessary to take inventories in different departments on different dates. Furthermore, it is not practicable to have an inventory taken on July 1st, for the reason that Mr. Almert, who, as you know, is to lend us expert assistance, has not yet had an opportunity to outline his plans or get his staff properly organized. We are informed by Mr. Almert that it is cus-

tomary in making valuations to leave the inventory of the stock of supplies to be the last work done, in order to eliminate keeping track of the numerous changes and also insure that the stock will be correctly shown on the completion of the total valuation.

"If, however, the Commission feels that for your own purposes it is necessary to have at this time an inventory of our stock of supplies on hand at the present date, we will afford you convenient access to our storerooms for the purpose of your making such an inventory.

"Respectfully,
(Sgd.) "CLARENCE P. KING,
"President."

856

June 12, 1914.

GENTLEMEN:

"The valuation which we are making of your property will be as of July 1, 1914. Inasmuch as the valuation cannot, of course, be completed until a considerably later date, it will be very essential that a careful record be made by you of all additions to and removals from the property subsequent to July 1st and prior to the date of completion of our work. This is, of course, as much in your interest as that of the Public Utilities Commission. We will expect, therefore, that you will supply us each month with a detailed statement of the items added or removed.

"Very truly yours,
"CHARLES L. PILLSBURY,
"Chief Engineer."

Copies sent to Dr. Bemis, the Public Utilities Commission and Mr. Almert.

857

December 9, 1916.

Cross-examination of Mr. Almert continued:

Mr. Almert: I want to say that I had full knowledge of these letters. My answer still is that I did not know what date Mr. Pillsbury used in his reconstruction program until I saw the report. * * * And with these letters it was my interpretation that they intended to bring it down to the date of July 1, 1916. I could conceive of no other use, knowing that you cannot inventory a property of this kind in a day.

Chairman Kutz: Might that letter not mean that the additions or changes occuring subsequent to July 1, 1914, were to be used in determining the fair value of the property at some later date, without necessarily changing the date of the cost of reproduction?

Mr. Almert: As of that time, I had no knowledge of the distinction which Dr. Bemis made and which it now seems the Commission makes between value and fair value. I had never heard of that distinction before. My belief, from the original letter and from the subsequent letter that they wanted the additions and with-

drawals, was that it was the Commission's intention to bring it down to the date of the hearing. I had nothing to do with the determination of value in this hearing. According to my interpretation, I was making an estimate of the cost of reproduction of the property of the Potomac Electric Power Company with the District of Columbia.

Chairman Kutz: Then, your ideas of value and fair value obtain only as to purchase, and not to value for rate-making purposes?

Mr. Almert: No. I do not see that there can be any very great difference between them. There may be some.

Chairman Kutz: What difference, foe example?

Mr. Almert: I can see that a man may pay a price for a property at this time, buy it on a basis which is lower than the rate of return which he would expect to make, for the reason that the future opportunities of that property are so great that after five or ten years' ownership of that property, with the growth in the size of the property and business, he will get a satisfactory return on his investment as a whole. He pays more, perhaps, for that property than he would be willing to pay if the property were to stand still.

Chairman Kutz: Then, your idea of value is based either on the present earning power of the Company or on the prospective earning power of the Company?

Mr. Almert: On a combination of all things—the value of the physical property and earnings of the past, both. All those elements have to be taken into consideration. I mean that, before you finally arrived at what the value of the property is you would take into consideration both what it cost and what it would cost to reproduce it. From a careful investigation of the past and the present and the future of that situation I would make up my mind as to whether or not the people that brought that property into being had exercised excellent engineering judgment; whether or not the property had been well conceived for the purpose for which it was used; whether or not it had been economically constructed and economically operated, as compared with another property in a similar situation, which had not been so conceived; and under those circumstances I would have a higher value for that property than I would have for the property where the reverse conditions were true, for the reason that any final determination that does not recognize efficiency in conception and management puts a premium on inefficiency and discourages progress; and any such legislation or determinations of that kind are going to be detrimental in the long run to everybody concerned.

Chairman Kutz: Let us assume 100 per cent efficiency in the conception of the project, in the organization of the project, in the construction of the plant and management of the property to date. The original cost and cost of reproduction was a million dollars. The return on that property is such as to be a fair return on two million dollars of value. What is the fair value of that property for rate-making purposes?

858 Mr. Almert: Offhand, my judgment is that a fair value of that property would be about a million and a half.

* * * I would think that in recognition of the efficiency of those who conceived it and the operators and that sort of thing, they ought to be compensated, and split the difference with the public. I do not hold, Mr. Commissioner, that the actual out-of-pocket expenditure is all that a public utility is entitled to. They can create expenses, in my judgment—an expense incurred by them can create value in a public utility, in my judgment, just as well as in a private enterprise; and a failure to recognize that, it seems to me, is a serious error. There may be this property, which may not be as efficient as you have spoken of, and that creates a value of less than cost.

I have to change the assumption in order to illustrate my point. A million dollar investment is a property—you may have two properties costing a million dollars. On one of them the expenditure, in my judgment, has created a value of in excess of a million dollars; and there may be other properties which are worth less. In other words, I think that the first principle, Colonel, that we are going to have an agreement upon in these matters is, and which will be adopted and from which I think the others will be adjusted, that investors in these utilities are entitled to have at least their principal conserved at all times and a fair return during the entire time their money is devoted to public use.

It seems to me that one of the first fundamentals, and if it can be shown that they have been exceptionally economical in the conception of the property and in its management, that there must be a reward for efficiency in conception and for its continuation. In other words, 100 per cent efficiency of conception is an element of value itself.

Chairman Kutz: In other words, I understand you to say that a value of 50 per cent should be based on the present earnings of the plant.

Mr. Almert: No, sir; I did not say that.

Chairman Kutz: I asked you that question, and you said a million and a half would be your estimate of the fair value.

Mr. Almert: I gave you that as a tentative answer. If those rates were low and reasonable, that would be my view; but if they were rates which were very much higher, it would not. I do not know of any that in 1900 or 1902 or thereabouts had as low a maximum rate under such an expensive construction plan and with as few diversified factors as in Washington. Were it not for the relations of the Potomac Electric Power Company with the Washington Railway & Electric Company, in my judgment it would never have held its head above water.

Mr. Syme: Do you recall that when its stock was bought by the Washington Railway & Electric Company that it was paid 200 per cent for it * * * How would you consider that, as a business proposition, if its earnings were so unsatisfactory and if the business conditions had been poor. * * * At any rate, if such was the earning capacity of the company, and if such was the incapacity

of the management, would not you have considered that paying 200 per cent for its stock was a very poor investment?

Mr. Almert: In the light of subsequent conditions, I would say that it was the best thing that ever happened for the citizens of the District of Columbia. I do not think it was a poor investment and would recommend it as an investment.

The reason, is that the ordinary layman, the public, does not realize that an industry of this character is a natural monopoly and that the elimination of competition at an early date, even paying a good round price for it, is the best thing that can happen to a community; that duplication of investment and in increase of operating expenses leads to unprofitable investment in that class of business and to an ultimate burden to the public, which increases with the length of time the competition continues. It seems to me that the elimination of competition—if that was the purpose at the time—was a very fortunate thing; and certainly two companies or more could not have distributed electrical energy, with the burden put on them by Congress for underground conduits, upon any such rates as Congress prescribed. Consequently, if they paid a good round price for it at that time, it seems to me that they had very good judgment.

859 Another thing, Mr. Syme: In the acquirement of the utility at that time (as I recollect it they only had one customer to every 95 inhabitants), the possibility of future development and density of business, together with the growth of the community, would, as business men between each other, warrant them in paying a higher price than what you might consider the stock was worth based on the earnings at that time. Whether there was competition or not. If there was a single company, the same thing would hold good. * * * I would not limit it to any price, but probably to a higher price than you conceive is good business. * * *

In arriving at a judgment of value, Mr. Syme; I would take into consideration, before I could answer, a study of the operations of that company in the past with regard to the actual money sacrifices in physical properties and the sacrifices in early deficits due to operation and cost of money and those various other things, and determine whether or not there had been any gross errors in the conception of the property and, bringing it down to date, what the earnings had been recently as well as in the past; *what the earnings had been recently as well as in the past;* what the growth of the community in the future may reasonably be expected to be; what the rate for services are and whether or not reasonable as rates go, and, for the community in particular, what the conditions of the franchises are, what the characteristics of the regulating powers are, whether fair-minded or antagonistic; and all those things I would take into consideration before I would arrive at a conclusion as to what value is.

Investment is one of the fundamentals; when you speak of "investment", I am talking about the total money sacrifice for physical properties and deficits in earnings and fair returns; I mean all those things together.

860 Conception of Fair Value—Almert.

Mr. Syme: Do you agree with what, I think, we may call Dr. Bemis' definition and also some of the commission's, that value has nothing to do with the ordinary conception of the term "value" as it is used in a commercial sense, but that value is the amount on which a return may properly be paid to the company?

Mr. Almert: If you make that qualification, that it has nothing to do with value in a commercial sense, then I cannot agree with you.

Mr. Syme: Then, you do not believe that value is the amount on which the utility has a right to earn a fair return as compensation to it for its services?

Mr. Almert: Whether I could answer yes or no to that would be dependent entirely upon who the interpretation of the things that go in to make up that value was determined by and what their values are; whether they were to be put into all those elements which I, as an engineer, or as expert representing a public utility think ought to go in to make up the value. I did not say this was value and the expenditure of the amount I have here testified to may create a value which is greater or less; but if it is less, it would have to be shown that there were gross errors in conception and management in my judgment.

861 Unit Prices and Inventory—Almert.

Mr. Syme: These final figures in your cost of reproduction are built up from the prices which you fixed in your inventory, with the addition of those direct overheads which are added under the designations of omissions and contingencies, detail engineering, general insurance and contracting fees?

Mr. Almert: Those are what I call directly distributed overheads, as distinguished from the direct overheads which follow;

Mr. Syme: These direct overheads, such as omissions and contingencies, detail engineering, insurance and general contractors' fees, then, deducted from the prices, as to your inventory, would give in its totals and in its results the sum total of the prices themselves set opposite the inventory, would it not?

Mr. Almert: Yes, sir.

Mr. Syme: The consequence is, then, with the omission of these overheads, that we come down to the basis of your report from the standpoint of cost, price?

Mr. Almert: Are you talking of an individual item, or all of them?

Mr. Syme: All of them.

Mr. Almert: Oh, no; because all the items would not be in there. The point I was making is that the cost which he arrives at is not complete.

Mr. Syme: In determining these prices which were to be applied to the different items in the inventory, you did as Mr. Pillsbury did,

did you not, relied on the reports and the data which competent members of your staff had been able to gather together and compile and submitted to you for final judgment.

Mr. Almert: Yes; I finally passed on their work; that was the only practicable way it could be done. One would not attempt to try to bring here as a witness every man on his staff that had personal knowledge of the multitudinous details of this valuation.

He also employed such checks as Mr. Pillsbury employed which would disclose any errors; that minor errors are bound to creep in, but amount to very little in the final result. * * * The bid which this competent contractor would be asked to make would be based on the theory that this property was to be projected into the future for five years as to its construction according to the report. It was to start July 1, 1916, and be substantially completed on July 1, 1921. You will assume that you have a competent contractor who would acquiesce in your request that he bid on the construction of this property on July 1, 1916, and that in so doing he would use certain estimates of cost as the foundation of his bid.

A competent contractor was also assumed, if his bid was successful, to become bound by his judgment of the particulars of his conclusions, arrived at from his estimates of cost to the extent that his fee may be limited to such an estimate. I have not assumed that he would take a contract to build a property for the sum that he estimated. Had he done so, he would have made it larger by playing safe and increasing contingencies and omissions and other factors so that he would not be caught in a change of market prices and not be able to deliver the property and leave a reasonable profit for himself.

Such a contractor would not go into that amount of detail. He would cover some of those by more percentages than I have used and reach a higher result, no doubt.

He would use such details as I have used here in the matter of prices; but he would not go into such detail in making up an inventory or bill of material. I never said that a competent contractor was going to make a bid on this property, by which he was to be bound, and under which he was to have any responsibility. I said that he did not expect to be bound to deliver the property at that price. He assumes the risk; and in those cases is quite competent to limit his compensation to the estimated cost. If he sub-
862 mitted it on the basis which I have assumed he would take that responsibility to build it on a cost-plus-10 per cent basis. But if he was to be limited to the exact amount he would refuse to take it until he has refigured it and added percentages for contingencies and things to make him safe. * * * and my basis, I think, is the usual and regular one in the ordinary course of business in building properties of this character. In the manner in which I have stated, I have assumed this contractor we are speaking about expected his bid to be accepted and himself to become bound by it. * * * that if he was to make a lump sum bid, that is not my conception of what has been done here; but if he is a competent man, in whom the owners of the property have faith, and they

have him bid on it with the view of having him become the contractor, and he makes up this estimate of cost and says "On that basis I will build the property for you, charging you 10 per cent for my expense and profit in it"—that is done regularly. * * * In the ordinary building of properties of this kind today owners have found it profitable to them to get away from tying down to the lump sum basis like this and building on the basis I have stated. It inures to the benefit of the owners to contract with responsible firms to build on a cost-plus-profit basis.

I meant that this man was asked by the company to estimate what the property owned by the Potomac Electric Power Company as of July 1st, 1916, in the District of Columbia would cost to reproduce and that with his facilities, his staff and his knowledge, he estimated what it would cost; he and the company both realizing that the material and labor market fluctuates, and that to ask him to make a lump sum bid on the property he would have to add amounts there to protect himself which would make the property cost more to the Company than if the Company assumed the risk of this change in prices. They might benefit by it if the prices went down; and for that reason it is ordinary business, followed out every day, to get away from the lump sum bid on a large thing of this kind and take it on a cost-plus-percentage basis.

He made an estimate of cost, and his bid was 10 per cent of the cost to which those things would apply for his constructing the property and delivering it to them in operating condition. That was the only amount which he made a bid on, as I understand what you are trying to get at. That was firm; the other things were not.

There was no contemplation in his mind when he made this basis, that he was to make a bid based on certain estimates which was to become binding upon him and for which he was to become financially responsible, at any stage of the game. He was to get 10 per cent on what it cost and these were his estimates of what it would cost. * * * It may be that conditions beyond his control have run up the market for labor and materials to such an extent that the property costs more by the time it is built. * * * If it goes higher he has to serve until completion of the property without compensation. I have assumed that, if you please, Mr. Commissioner.

As quickly as it was possible, with a reasonable staff, purchases would be made of the materials and apparatus which would go into the cost of construction, and the only element that I would say would extend over into that period would be the effect of labor. As a matter of fact, those prices were added as approximately fair prices as of July 1, 1916. The construction program was to guard against prices for immediate delivery—catch prices of that character. I do not think there is anything here, Mr. Barbour, that is out of the ordinary line of doing these things every day.

The prices were based in part on the study of the costs of the company, based in part on quotations obtained from manufacturers of apparatus and material, based on knowledge contained in my own files and from various sources, and, finally, those which I believed that a competent contractor would use if asked on July 1st to pre-

pare a bid on this property. It was based very little on assumed future prices. It was assumed that within a period of three or four months' time all contracts could be arranged for and be let, so that material prices in the future would not affect this property.

We had information here yesterday as to an increase in the price of turbines. I had a study made of the contracts, with the prices paid by the compaby for turbines. I had prices paid for turbines in the past. I had prices for turbines as of the beginning of our work, as of July 1, 1914, and as of July 1, 1916, and the prospective prices in the future; and it was apparent to me that, if the letting of contracts for turbines was delayed materially, prices would go up for turbines. So that, after consideration, finally I arrived at a price for turbines which was, to all intents and purposes, what the company actually paid for the turbine itself, to which I added my own estimate for the cost of foundations and freight and installation, and so
863 forth. I have not said that I knew the price that the company paid for a turbine on July 1, 1914. I had prices of turbines at that time, but I do not recollect that the company bought any in 1914. I did not average the prices.

If the price of a turbine was $10,000 on July 1, 1914, and the price on July 1, 1916, was $15,000; if, in my judgment, the 1916 price of $15,000 was one which would continue stationary at that price or go up, I would use the $15,000 price.

There were some things that I took the price as of July 1, 1916. I do not remember now just what they were, but the majority of them were not in excess of July 1, 1916.

On a great many things which do not run up into a great amount of money; on some such things that do run up into a great amount of money, such as turbines they were less than the prices as of 1916. Prices as low as 1914 were used.

My labor prices are practically the same as 1914, and on a great many of the miscellaneous items on which I obtained prices as of about 1914 or 1915 I did did not see that it had enough weight to make it worth while to change my figures of the labor prices paid in 1914 and 1915. My first conception was as of July 1, 1915. I did accumulate my inventory—I expected to complete it at that time, and then if there were any changes I would include those.

Prices accumulated as compared with the prices for many of the 1916 prices were left unchanged and some increased 5 per cent. Labor was unchanged; practically all miscellaneous prices remained unchanged. Do not recall anything else right now. Cannot state what per cent of this cost of reproduction is represented by labor and what per cent is represented by material. On specific parts of the properties those analyses were made, but with relation to the whole, I could not say.

But as I have assumed there, labor here in the District of Columbia, I did not expect any material increase. Since I made up this estimate, or just about the time I made up this estimate, I believe there was an increase in price, but I did not take that into consideration.

About materials, my assumption was that he would arrange to

protect the company by placing orders in a very few months for the requirements, so that they would be delivered when needed, and at prices which manufacturers and suppliers of materials would be willing to contract for at that time.

Chairman Kutz: But the manufacturers and sub-contractors who were going to do the work during the ensuing five years must necessarily make the assumption, then, as to whether the market is going to rise or fall during that time?

Mr. Almert: When apparatus manufacturers take a contract for the delivery of apparatus in the future they take it at a definite price, and then they in turn protect themselves by the purchase of the materials that go to make that up. They do not forecast the future; they protect themselves by immediately going out and buying materials at present prices, so that they are protected for the future. It has been my assumption here that you could buy your materials at prices not exceeding the 1916 prices on practically everything. There may be some thing that is slightly higher than 1916, but I do not remember now if there is.

Would not say it is a mistake in the light of the study of prices. I may have taken into consideration that they could not contract immediately, and that they might rise before the contract was made; but I think that, whatever that was, it would be insignificant in its effect on the whole. The bulk of the prices for materials, leaving out of consideration labor, are based on 1916 prices within two or three months' time of July 1st. * * * For example the prices on turbines, if he had to have them for spot delivery, no doubt would have been very much higher than the price which I used, or if he had a contract for a very quick delivery it would be higher. But I have tried to eliminate those things.

On concrete the amount that I had in there for, take as an example, the 1-2-2-5 mixture—a large item, that is representative * * * The base price per cubic yard $1.74, sand 64 cents. The base of that is 1.24 barrels at a price of $1.59 gross, less 30 cents for the return of sacks, plus one cent for freight. In a cubic yard of concrete of that 1-2-1/2-5 mixture I have estimated it required 1.24 barrels of cement at a cost of $1.74, and the cement itself was included on a basis of $1.59 per barrel f. o. b. Washington, less 30 cents for the return of sacks, plus one cent for freight on each sack, plus five cents inspection charge of cement and ten cents for hauling, which made the total price of cement $1.45 per barrel. The sand is .44 of a ton, at a price of 64 cents, and gravel .87 of a ton at $1.47 for the amount in a cubic yard.

864 Chairman Kutz: What is the price per ton or yard?

Mr. Almert: On gravel it is 65 cents per ton, 1.56 tons per cubic yard. The total cost of materials in that mixture was $3.85, to which I added 67 cents for the use of the mixing plant, etc., and the waste, and $1.50 for labor, plus 15 per cent for subcontractor's profit, an expense on the labor only, making 23 cents, and making a total cost of that concrete $6.25 per yard. That assumes the labor was paid 28¼ cents per hour, or $1.50 per day. There are two classes of labor used there, one at 28¼ cents an

hour, and the common labor at $1.50 per day. Don't think all our common labor is on the basis of $1.50. It is on this concrete. We had some higher, and I want to see if I cannot find that sheet. I will try to find that sheet and look it up. My recollection is we paid 20 cents per hour for some common labor on some classes of work. I assumed this work was done under an eight-hour basis. I think that is customary here. I have an item here in part of the erection of apparatus in which I have labor at $2.50 per day, which is better than the ordinary street labor in connection with the erection of apparatus. I think some labor works longer than that though. Most of my estimates are on an hourly basis, so it would be immaterial whether they worked eight or nine hours.

I would not be compelled to increase that rate of $2.50 per day if a ten-hour day had been assumed on anything except common labor, because all my estimates on the balance of it are on an hourly basis. If he worked a ten-hour day I would have paid those men 25 per cent more. The cost of common labor in total is not a very great sum. The balance of it is skilled labor which is at an hourly rate.

865 Steel Prices—Almert.

The price of fabricated steel material was $2.67 per hundred pounds about July 1, 1916, to which I added 55 cents for hauling and erection and eight cents profit, which is 15 per cent on labor for the subcontractor, making a total cost of $3.30 per hundred pounds, or $66 per ton for that class of material wherever that occurred in the construction of a building, on the basis of a quotation obtained about that time; and also on a consideration of a number of contracts which were let in Washington as about of that time.

The Lansburgh Store Building was a matter of 820 tons; the price of that was $76 per ton. For all classes of items that went into that building, it is not quite comparable with this.

In June, 1916, the Labor Department Building on G Street, $79 per ton.

In July, 1916, the Harrington Hotel Building of $80 per ton, and in July, 1916, the Southern Building of $78 per ton. There was an apartment building here $88.50 per ton.

Those prices are prices erected on columns I used which go to make it up, $3.83 per hundred pounds, or $76.60 per ton. On plate girders $4.28 per hundred pounds, or $85.60 per ton. On trusses and lattice-work $4.51 per hundred pounds.

Ten per cent is added for the general contractor to this price.

Chairman Kutz: Take the item of trusses. What part of that is labor and what part is material?

Mr. Almert: The hauling and erection is 75 cents per hundred pounds against $3.65 for the material fabrication. I did not split up the difference. I took the fabricated price, which is the customary way of doing it.

Chairman Kutz: Tell us what the constituent elements are of the price on common brick work?

Mr. Almert: In the common brick work I had a number of quotations on brick and actual costs on a number of buildings constructed by the company, and I arrived at an average cost of common brick after a study of the quotations and the actual cost, and determined upon $8.50 per thousand for common brick delivered to the job wherever it was, to which I added a cost for mortar of $1.40 per thousand.

It is based on prices earlier than July 1, 1916. I do not know the exact date when these constructions took place. Take the structure at 14th and B Streets, Northwest, and the Four-and-a-quarter and O Street Building, southwest, and the P street shops, at 11th and Florida Avenue, and the substations, 1, 2 and 10—the price generally around the city from manufacturers of brick—and the Fifth and T street, northeast, and Fifteenth and H street, northeast. The price of all the brick was not $8.50. They varied from $8 to $9.25 per thousand. The $9.25 price was in connection with the construction of the Brightwood car barn, and I haven't the date. It was earlier than the period of the estimate.

After a study of these prices to see what effect it would have, the price which I finally adopted is the same as the general delivered price of brick in this territory, which was $8.50. I had a verbal quotation to that effect about July 1, 1916.

The mortar, $1.40, and the labor of laying $6.46, which was based on a mason laying 1,000 brick in eight hours, and with the use of one-half of one helper on that basis, and the other items of scaffold and that sort of thing, making the total price of the brick laid $18 per thousand. As I stated in my direct examination, this is our study now, and this price was taken into the field and if it was ordinary runs this $18 price was used, but if it was particularly difficult laying so that a mason could not lay 1,000 brick per day, we increased it. This was the price determined upon after the completion of the inventory. This was done independently of the inventory, but we started later in the taking it into the field to see whether or not this was a fair price to apply after the completion of the inventory. We had other valuation work in progress than that pertaining to these two companies, the Potomac Electric Power Company and the Washington Railway & Electric Company, the properties of the puble service company of Northern Illinois. I started in about February, 1914, and completed it about March or April of this year; and the Commonwealth-Edison Company, on which we are working now.

Previous to 1914, I was with H. M. Byllesby & Company in the same line of work.

The witness has compiled cost data concerning all of these matters as of 1914 but not in Washington. As an expert engineer engaged in the valuation work of this character, the 1914 price was

lower than 1915 and 1916 prices. I could not give you the per cent. They were somewhat lower in 1915 than in 1916. The 1914 prices as much as 10 per cent lower than 1916 due to the stagnation of building in this District. I think there would be a difference of 10 per cent in Chicago. I do not think there would be as much as 25 per cent difference. I think 10 per cent would be nearer the difference, everything considered, than 20 per cent. The difference in Washington would be greater if anything than in Chicago because construction in Chicago was active at that time on other classes than utilities.

Witness is more or less familiar with Mr. Pillsbury's report on the property of the Potomac Electric Power Company.

867 I am judging now by the comparison which I made at the time during his cross-examination when he was asked what prices he used, and in checking them at the time they seemed to be practically the same as mine.

Mr. Barbour: Mr. Chairman, is this cross-examination now confined to buildings—these percentages?

Chairman Kutz: No.

Mr. Almert: It is not confined to buildings?

Chairman Kutz: No.

Mr. Almert: That was the only thing I had a check on with Mr. Pillsbury at the time. We were discussing buildings then. I did not get into his prices on other classes of work.

I have nothing to base any labor cost on, judging from Mr. Pillsbury's report, other than Mr. Pillsbury's report.

The reply that the 1914 prices differed from the 1916 prices by 10 per cent pertains only to buildings.

It would probably be more than 10 per cent on other things than buildings,—on miscellaneous property. As to machinery between 1914 and 1916, you heard that yesterday—I haven't anything to add. The difference would probably be 25 per cent on machinery, and on turbine and electrical machinery.

It would cover the complete turbine. I would not separate the mechanical from the electrical end. The prices on that particular one that I have used, however, was practically the same as the company paid. The 1916 prices on turbine were higher, but, I considered, after considering everything, fair prices and base prices, that was a fair price to use in the reconstruction.

I don't think there is any very big difference between those two dates on that particular item.

868 Poles, Wires, Cables, & Conduits—Almert.

They are higher for 1916 than they would have been in 1914; probably 25 per cent, as a rough guess. I put them in the same class as turbines. The labor is the same. There has been a material increase in labor this fall. I guess it was just about the time when we were completing our work.

Chairman Kutz: What I mean now is if we deducted from your cost of reproduction the 20 per cent, which would be the equivalent of an addition of 25 per cent on the 1914 price, that is, deducted

from your 1916 cost 20 per cent on turbines and generating machinery, and on poles, wires, cables and conduits, and deducted an equivalent amount on buildings comparable to an increase of 10 per cent, we would get results as of 1914 that, in your judgment, would be fair?

Mr. Almert: I think so.

Chairman Kutz: Have you made any such deductions for the purpose of seeing how the results would compare with the result of Mr. Pillsbury's work?

Mr. Almert: I have not, but I think such a comparison can be made. Just as an example, on labor, Colonel, take bricklayers. We have the 1914 and 1916 prices on that, and we used a price for 1916 which is five per cent higher. The comparison there showed that in 1914 bricklayers received 66⅔ cents per hour, and in 1916 70 cents per hour, which is a five per cent increase, but we did not take advantage of that increase; we used the 66⅔ cents.

Chairman Kutz: * * * You further said that to the labor elements was added subcontractor's expense and profit. Were these various elements applied as percentages respectively to material and labor?

Mr. Almert: Yes, sir. The subcontractor's expense and profit was 15 per cent on labor. The percentages in the other cases varied with the class of labor. On such things as they would apply—store room expense, for instance, was five per cent of the material cost. That did not apply on such things as do not go into the store room, on the apparatus, sand, gravel and things of that nature, and *and* the freight, as I have testified, was obtained knowing the weights of the things handled, taking the classifications as published by the railroads and ascertaining the amount of freight from the factory from which they probably would be purchased. The freight was not applied as a percentage. We determined it in amount on a particular class. Waste and breakage was a percentage, too, which varied with the class of material. I do not recollect the amount, but I may be able to show it to you. It is applicable principally on transmission and distribution equipment, and is approximately one per cent. That is transmission and distribution material. All of these items enter into our unit costs. We do not have that on the apparatus, for example, that is, no waste, and breakage on apparatus and things of that character; but wherever they are applicable they do enter into the unit cost. There is no store room expense on apparatus. Generally speaking, there is none on power plant and substation equipment, but there is on transmission and distribution material.

Chairman Kutz: You offered in evidence a letter written to the Public Utilities Commission October 30, 1916, signed Harold Almert, by H. L. Dickerson, in which you called attention to certain alleged differences between labor and material reproduction cost of Mr. Pillsbury and yourself with respect to various items of transmission and distribution system as of July 1, 1914. On page 2, under the
869 heading "Underground Conduits," you stated that Mr. Pillsbury's figure as to account 320, namely, $647,493, should be $839,948. Is there anything in that letter which in any way gives

the Commission a clue as to the cause of the difference or a suggestion that would enable us to check up the difference?

Mr. Almert: We tried to work back, Colonel, and to set out those differences as we had in the other items, but the nature of Mr. Pillsbury's inventory and cost estimate and ours is such that we could not do any differently than this.

I think it is due principally to higher unit prices used by us and also no doubt differences in quantity.

I am unable to say to what extent there is a difference in quantity because there is no way of checking it.

870 Conduits—Almert.

The quantity of conduits in our report is duct feet, and Mr. Pillsbury's is in lineal feet of different assemblies, as I remember it.

We could not make a comparison. I spent in the neighborhood of $5,000 in trying to make such a comparison; not on that alone, but on the whole work.

The number of duct feet in our inventory was determined by an inventory in the field. We had on our field sheets the measurements there given and the number of duct feet multiplid out. I took it in a number of cases if there was an assembly between two manholes of four ducts in one hundred feet that that would show four hundred duct feet, not that there was one hundred feet of four duct.

Chairman Kutz: You do not think your notes will show that?

Mr. Almert: No, sir. Mr. Dickerson says probably from the assembly on the sketch sheets that is shown.

A comparison is not possible if you stop to consider that there are over 200 districts and that there are a number of sheets for each district, to go over that work would take a great deal of time—a great amount of time, and I do not know to what extent that difference of nearly $200,000 is due to the difference in quantity and what part is due to difference in prices.

Chairman Kutz: Do you believe that Mr. Pillsbury's report is in error as to the quantity of conduits shown therein?

Mr. Almert: Yes, I do. I couldn't tell in what section that error lies. Didn't use exactly the same sections as he used. We divided our town up from the same map, but I do not believe we have exactly the same sections that he had. I have not seen his sections, by the way, so I could not answer yes or no.

He does not think it is possible for the Commission to reconcile this difference than it is for you to do so. It is possible if the expense warrants it. I do not see how it can be done from anything that either has submitted to the other.

There is another thing to be considered. There may be differences between us in our classification and in the interpretation of the classification as to assigning conduit to street lighting or to main conduit, and things of that character. I cannot foresee all the complications we will get into on that *amount*.

I do not mean to say that there may be a difference between my report and Mr. Pillsbury's as to what conduits belong to the com-

pany, but as to what account they are in. There is also, it may be, a difference as to railway conduit and Potomac conduit.

871 Poles and Fixtures—Almert.

Chairman Kutz: In your letter of October 30, under the heading "poles and fixtures," you refer to a difference of $4,500 in the total of approximately $90,000, or a difference of about 4.9 per cent. You merely say this item should be such and such an amount.

Mr. Almert: That was my judgment.

Chairman Kutz: On what do you base that? Is that a difference in quantity or a difference in unit price?

Mr. Almert: Both, but mostly in price. It may be both.

Chairman Kutz: What difference in quantity is involved?

Mr. Almert: We have a total of 7,861 poles as of July 1, 1916, compared with the Commission's 6,977 poles as of their date. I am unable to say now what the difference was at the time.

Chairman Kutz: You don't know, but this figure which you gave us here of $92,991 is that your value of poles as of July 1, 1916?

Mr. Almert: No, sir. That was a figure which we made up at that time and which we thought would be comparable. * * *

We had to work back from the figure we had to what we believed would be the proper one as of the time of Mr. Pillsbury's valuation in percentage in dollars and cents.

Could not say whether there is any difference in quantity in that item. That $92,000 is based on my estimate of cost to reproduce, modified by what we think the situation was at the time of Mr. Pillsbury's valuation. * * * It represents our 1916 valuation diminished by a percentage which we believed would make it comparable with Mr. Pillsbury's valuation as of that time. * * * Based on the number added by the company. I can look it up for you, but I cannot give the number now. I think I just gave you the figure here, $7,800, only for the wood poles. I would have to look into it to get the iron poles. There are 150 poles. There may be some others there. I haven't the exact total but can furnish those exact figures.

Chairman Kutz: Can you tell the Commission now how you did arrive at the $92,000, that is, what per cent, if you did it in that manner, you deducted from your 1916 estimate.

Mr. Almert: In this particular item Colonel, we took our 1916 estimate and deducted from that the additions by the company from the time of Mr. Pillsbury's inventory to ours and at their costs approximately to get at this figure. We had no better way of doing it at the time.

I cannot answer now how the company's unit cost differ- from Mr. Pillsbury's unit cost, but there may be an error to the extent, I take it, of the difference between the company's unit cost, perhaps, and my own, that would probably be a neglible amount. I believe that the number of poles listed in Mr. Pillsbury's report is in error. * * * I cannot stand up and positively say, yes, because I don't know, but I believe it is. I believe it is too little; to what extent, I

could not say, because all I have to work on is just what I have told you here, the difference between us in dollars and cents, and I think that is made up both of difference in quantity and prices.

872 Comparison as to Manholes—Almert.

Chairman Kutz: In the same letter you refer to the item of manholes, including appurtenances. You recite the Commission's total of $287,000 odd, and say it should be $324,000 odd. On what do you base that statement, a difference in quantity or a difference in unit price?

Mr. Almert: Both. I cannot answer to what extent there is a difference in quantity, but I think we arrived at that in the same way as we did in the matter of poles.

Chairman Kutz: You took your 1916 account of manholes and deducted the number of manholes added since July 1, 1914?

Mr. Almert: No, the cost of those manholes as shown by the company's books—as shown by the figures of the company. We modified ours to what we believed would have been fair as of 1914.

Chairman Kutz: And deducted 20 per cent, did you?

Mr. Almert: I do not want to be tied down to 20 per cent, Colonel. That was a general figure.

I can attempt to reproduce these differences as I got them, but as I stated it was impossible, from what I had from the Commission, to make any accurate comparison.

As I have stated with the time at my disposal I worked back from dollars and cents in this and not from the units because I had not sufficient information on which to check it.

Mr. Barbour: Mr. Chairman, just at this time—I do not want to interrupt the witness, but I believe with the exception of the single letter to which the Chairman has referred, all of these other letters have gone into detail.

Chairman Kutz: I think there are some others.

Mr. Barbour: So far as we know they have received no attention, and the question of unit prices was never gone into. As far as the checking was gone into, it was on the subject of quantities only. They never got down to the prices on the thing at all so far as any checking was done, and with the single exception of this letter the detail has been gone into. Of course, I am making that statement subject to correction. These letters were introduced into the record.

Mr. Almert: May I state, Colonel, with the meager information at hand it was not my intention to say that this is actual difference exactly, but to give the Commission notice as to where the difference lie in order that we might check them or that they might investigate to find out where the differences lie. * * * I do not remember that they furnished me with anything comparable to this, any detail.

Chairman Kutz: Are there any other items in that letter of October 30th in such form that the Commission is able to make any intelligible comparison?

Mr. Almert: Take on the meter installation, there we have some thing actual, at the bottom of the second page.

Chairman Kutz: Will you tell the Commission how you arrived at that price of $1.75 for meter and $1.15, one in the case of A. C. meters and the other in the case of D. C. meters.

Mr. Almert: That particular item is based on a study of the cost to the company, and is a price which we use in our 1916
873 figure, and remained unchanged so far as 1914 is concerned.

Chairman Kutz: Is that the cost to the company in 1914, or an average cost during a period of years?

Mr. Almert: A study over a period of years. It represents an average over a period of years. I couldn't say positively as to whether it is higher or lower than the 1914 cost. I think it is fairly representative of 1914, and a figure which we would have used, and applies to both kinds of meters. Page 3 gives the D. C. meters and page 2 the A. C. meters. My statement applies to both kinds.

Chairman Kutz: On page 3 of the letter, under the heading "Street and park lighting," you list a series of six or more articles on which you state the Commission is low, merely giving the amounts. On what do you base that statement that the Commission is in error,—as to the quantity or unit price?

Mr. Almert: I cannot tell you which, Colonel. Maybe on classification, or it may be on quantity, or it may be on price, or on all three.

These were submitted, and all of them, to give notice to the Commission of differences that we found, with the belief that the Commission would institute such an investigation to ascertain whether or not they were actual, and we would join in that investigation.

In a great many instances, from this examination, I am satisfied that they are errors of the Commission's employes, and on others there may not be real differences. There may be differences in classification, but it was *our* intent to cooperate with the Commission upon sending this to them to ascertain what the differences were.

In the instances you have specified I do not know which ones they refer to, but in the omitted items on that page, from an examination of Mr. Pillsbury's report we could find no such item. We had items for these things, but we could not find them in Mr. Pillsbury's report.

If they were there under other headings, we did not find them, although we looked. That is the reason we submitted them, thinking that if they were the Commission would report back to us those items which were included elsewhere and tell us where they were included, but there was no action of that kind on the part of the Commission.

That was my assumption all the way through, with reference to all of these sheets, and on the matter of buildings, a few of them we actually did get the attention of the Commission with referennce to making a check on the quantities alone, and there we found were errors both ways, errors in the Commission's work and errors in our work. In the main, however, we found that where a correction was made because of the fact the Commission had included the material in some other place additional errors were found so that, in the main, our contention as to the differences remains as originally stated.

I have already stated what errors existed in the Commission's inventory of July 1, 1914, so far as quantities are concerned, in those letters.

It is true with regard to this particular letter that we do not know whether the differences were due to inventory or unit prices, but in many of the other letters we have stated that the difference in this cas is in quantities and that the difference in another case is in unit price. Wherever it was possible by the information at hand we stated the specfic differences, and I do not think the situation has changed so that I could add anything to that. I mean assuming now that Mr. Pillsbury's report as of that date is comparable with the quantities of property as of 1916. On that point we did not undertake a minute comparison to detect all differences, but only to what appeared to be the larger difference.

874 In the first place, we had to just go over the report in a cursory way to see where the largest differences occurred, first in dollars and then also to see if they were in quantities or where the differences lay, and we did not attempt to note any item unless it was several hundred dollars; but occasionally we came upon a small item next to a big one, and then noted it, but we could not go into minute detail with the time or expense we were permitted to incur or have the time to incur.

It is not a fact that the only place where we submitted to the Commission differences in quantitoes was on buildings.

Mr. Syme: And that Mr. Williams and Mr. Kappeyne both made separate reports as to those differences?

Mr. Almert: I don't know whether Mr. Kappeyne made one or not. He was to make one, but I do not know that he has made one.

Chairman Kutz: In your letter of September 11th, under the heading "Uptakes, breeching and flues" you refer to an amount and say it should be $10,400 odd instead of $6,000 odd.

Mr. Almert: That was a difference of unit prices at 14th & B, wasn't it?

Chairman Kutz: Yes. The point I wish to bring out is on page 4 of that letter you refer to this as of July 1st, 1914. Now, this same item, without change in amount, is apparently carried forward into your 1916 report.

Mr. Almert: There is no change in the physical property for that item.

Chairman Kutz: But is not the value of sheet steel different on July 1st, 1916?

Mr. Almert: Yes, sir; but I do not believe we have changed that item, Colonel.

Chairman Kutz: But I am asking you why you did not?

Mr. Almert: Because at that time when that price was made we did not consider it was of sufficient magnitude to change our report any.

Chairman Kutz: The price of sheet steel has gone up, hasn't it, since 1914?

Mr. Almert: Yes, and I may be subject to reprimand for not changing that item. It ought to be increased undoubtedly as to this

matter. You will notice that I say "Fan equipment." we believe has been entirely omitted.

(Hearing was then adjourned to the following morning.)

875 Cross-examination resumed by Col. Kutz:

Witness, Mr. Almert, testified that he priced this property as of July 1, 1916; that for the purpose of instituting some comparison with Mr. Pillsbury's reports, he converted his 1916 prices into 1914 prices, as nearly as he could; some were not changed; That the cost of steel uptake at the B street power plant, refers to the 1916 prices, probably. The same thing may be true in some of the other items but he does not think that there is anything because a great many of those things were not increased for 1916.

The comparison is done in a great variety of ways, but he could not answer specifically and give any answer that would hold for the whole thing.

With regard to the poles, he had merely deducted from the 1916 total poles the amount spent by the Company for poles in the last two years.

He does not think that at that time he had completed the work at the prices of 1916. He thinks they had some other prices as of an earlier date.

He started out with the beginning of the inventory to get prices, and we had them in parts throughout the entire period of 1914, 1915 and 1916.

He thinks that information is still in the files.

Did not have 1914 prices on concrete.

* * * We were working up with all those prices of that period in hand, and we did not work up a price for 1914, a price for 1915, and a price for 1916 on those things. We worked them up as we came to them, and I cannot tell you now definitely what we have in those fragmentary lists of prices. A great many of those are the same in the report now as the 1916 prices.

* * * At the time when these cost studies were made, we started in at 1914, and worked up to 1916, and it was a sort of continuous process in gathering and in revising to get what we thought were fair prices. Ultimately, speaking now for the moment the report was submitted, those were the prices which, without any consideration of future rise in prices, I considered the pricing hypothetically done by the contractor, just as the building of the thing would be done; that he priced it as of the prices obtaining as of July 1, 1916, without consideration for the future.

Chairman Kutz: And you assumed that would continue for a period of five years, practically without change?

Mr. Almert: He made no assumption of that kind. It was a hypothetical situation that he priced as of that time without regard to whether they would rise or fall. I mean that for this whole thing here hypothetically he was not interested in whether they would rise or fall, but what were the fair prices as of that time. * * * Not

meaning by that necessarily, now, that there might be some particular item on which the prices were higher in 1916 than we used. Take the example of turbines. The price of turbines could not be obtained as of July 1, 1916, on current quotations, as low as the price which we used, but we believe what we used were fair prices as of that time.

Turbine prices current as of July 1, 1916, were lower than those used; could not tell how much lower, if any. At the time when I determined on the prices to use I had prices as of 1914 and as of 1916, and the prices which I did use are in between those two. Could not answer what other item than turbines appears in his cost of reproduction as the price different from the 1916 price.

Mr. Barbour: Mr. Chairman, just at this point, and along the line of information that the Chairman has indicated that the Commission would desire, I would be very glad indeed if the Commission would state, as specifically as it can, what additional information they would like this witness to produce, and we will see that every means in our power is exercised to get it into the record in as nearly the shape that the Commission wants it as we can.

876 Chairman Kutz: I think the only thing we want is such information as he has concerning prices as of a date prior to July 1, 1916. This Commission is bound to bring these two reports together somewhat before it can institute a comparison. * * * We believe the information in the possession of Mr. Almert regarding prices of 1914 and 1915 is a very much more important item in that process of reconciliation than any information which Mr. Pillsbury may have, because he was working all along as of that one date whereas, Mr. Almert admits that many of his items were priced as of an earlier date than July 1, 1916.

Mr. Almert: When you asked me, Colonel, if I could think of any other item that had a lower price in 1916, and I could not, I did not remember at that time the matter of labor. All labor in the total is a big item. That was unchanged.

The labor which he used in manufacture is of a price as of July 1, 1916. * * * I assume that in fabricated material purchased at that time it would be 1916, but all this erection labor, assembling of the property, which may run 20 or 25 per cent of the total—I don't know what the item *it*—has remained unchanged.

The percentage used for miscellaneous field expenses and field supervision varied on the classes of work. I think we can get you that. They were worked up in the unit prices for the various classes of things used.

Chairman Kutz: Have you a schedule showing the allowances for each of the items mentioned in this paragraph?

Mr. Almert: Not tabulated as such; no, sir. Could not say whether these two items, Miscellaneous Field Expenses and Field Supervision, were included by Mr. Pillsbury in his unit prices. * * * I don't know whether we got down far enough into the detail of the comparison so that would be true or not, Colonel. If it was a matter which was in his general charges, if miscellaneous field

expenses was up in his general charges, then I think that would be true, but I would not expect to find it up there.

Maybe this answer is clear. If in his unit prices he has not included the elements of miscellaneous field expenses and field supervision which go to make up his base labor and material cost, I think then, of course, it would be necessary to make a deduction before they would be comparable.

Chairman Kutz: We would still like to have those percentages that you applied on these two items in different classes of property.

Mr. Almert: We would have to work them out for you, Colonel. It can be done, however. I have no tabulation made up. I would have to make such a one for you.

On page 3965, in the second line from the bottom of the page the word "labor" should be stricken out and the word "material" should be inserted.

The witness was also requested to insert the allowances for waste and breakage, and any other items in that paragraph which he applied in the form of percentage on different classes of material.

Mr. Almert: I have assumed, except for the purpose of inventory, the property was non-existant, and I am not assuming that there was a property here which was put here over-night, and went out of existence with the houses all wired and the people all accustomed to its use and all ready and waiting to be connected up.

Mr. Barbour: Have you assumed anything else, Mr. Almert, than what Mr. Pillsbury assumed in that respect for his hypothetical case?

877 Mr. Almert: No, sir.

Mr. Syme: Did you or did you not, when you had in mind the charging of the people of this town $650,000 for conceiving something which was a unique, unheard of thing in this country, or conceiving something people knew about and had been educated to all over the country in any city of any large size. Which did you assume?

Mr. Almert: I think you are bringing in questions and hypothesis which are entirely unnecessary to the conclusion, and matters which I did not take into consideration at the time when I assumed this hypothesis.

Mr. Syme: When you are considering what a man should be paid for promoting a thing, didn't you consider the difference between promoting an enterprise which was being used and proving successful all over the United States and that of promoting an entirely new thing that people had to be educated with regard to?

Mr. Almert: Possibly so, but, take as an example, in the City of New York today * * * there are underground tubes there or subways which are in satisfactory operation, and perhaps profitable. At the same time, if a new underground system or subway was conceived and laid out in a certain territory right in New York, the conceivers of it would not assure its success, and investors would not fall over themselves, nor would the District Commission of New York fall over themselves to grant them a franchise for that pur-

pose. That promotion expense and conceivers' compensation would have to be paid for bringing a new thing into being right in New York today, and in connection with other properties of this character over the country, that is true and is being done every day.

May I add to your question from the Rochester, Corning & Elmira case, for the purpose of this record, what the Chairman of the Commission there stated on this very subject, reading just one paragraph. This is what was said by Chairman Stevens in the Rochester, Corning & Elmira Traction Company case:

(Reading:) "Another object of great interest and importance is the compensation, if any, to which the promoters of an enterprise should be entitled for their services. Promotion has been so extensively abused and has been so universally used as a cover for abuses in capitalization that it has come to be regarded as a term of reproach and as a device to work schemes of robbery upon the investing public. No reason is apparent why this should necessarily be so. The honest services of a capable promoter are indispensible to the flotation of every comprehensive and far-reaching scheme of development in the railroad world or elsewhere. A clear vision to see opportunities, ability to demonstrate them to others, energy to push to completion works untried but of great moment are indispensible to the material development and should be fairly and even liberally, rewarded by the public which receives the benefit of these works. Such rewards, however, should be put on a clear basis of business principle; should be of sufficient magnitude to encourage rather than discourage enterprise; and should not be so great as to make an exorbitant demand which is perpetual in its nature upon the community to be served. They are to be treated simply as just payments for services performed for the corporation, which services are valuable, and, in many cases, even indispensable. Such services should be paid for upon the basis of what they are fairly worth, having regard for all the circumstances in the case."

In that case the Commission allowed 5 per cent of the estimated cost of the railway for that item.

In my judgment all of these questions of Mr. Syme are nothing but catch questions. It seems to me that, for a man of affairs
878 there are no complications of the kind which he assumes at all. It is perfectly clear, but as a matter of diversion I can readily see where a man could sit down and discuss this thing and propound catch questions that would consume almost any amount of time and would lead to no place. The basis on which the hypothetical cost of reproduction is made is clearly set out in my report. There is a difference of opinion in the way of handling and the way of setting down and ultimately treating these various items of preorganization expense, legal and organization expense and compensation to the conceivers of the project, brokerage and commissions. They occur in a continuous performance, so to speak, and due to a difference of treatment it is impossible for me to set out definitely just where one begins and just where one leaves off and enumerates specifically each and every item as they occur. I have tried to be as logical as possible here in the enumeration of them,

and have cited cases to you where the amounts have been used, which I believe clears up the situation. If the object of this questioning is to name each and every specific one and where it began and where it left off, I cannot do that in detail.

The item for finances is $60,000.

Mr. Syme: That item is $60,000. I had another item in my mind when I called the figures, because the two were connected together very closely. They were to be allowed, these gentlemen who were not going to put their money in it and who were forming the company, $60,000 for the expense of negotiating only, and you mark that under the head of "Financing." They were to be allowed $60,000, then, for the expense of negotiating? Who was going to do the negotiating?

Mr. Almert: The officers of the company would negotiate, perhaps, with some assistance from the conceivers, but this does not include any of the expenses or compensation to the conceivers of this part of it. They were going to negotiate with a number of those houses in the country, banks and bond houses which are in the habit of underwriting projects of this character. In other words, these gentlemen who were to be the objects of the promoters and conceivers in being induced to go into this scheme for the purpose of this construction were not able to get the money for it themselves. They were to put in part of this money.

Mr. Syme: How much were they to put in and how much were they to get out of this $700,000 allowed to the promoters?

Mr. Almert: In reply to that statement of yours, Mr. Syme, that they put no money in, that very first paragraph on page 1228 says that when the company has been formed and the franchise secured and options on real estate and right of way closed and preliminary estimates are completed it has exchanged and sold an amount of stock sufficient to complete the preliminary engineering work and precedes the actual construction. I had in mind there that the officers and stockholders of the company were the ones that subscribed to that stock; that they could not interest outside capital unless they did themselves put in some money.

Of that $30,000, $40,000 is for engineer's reports.

Mr. Syme: What was that basis on which you calculated this $700,000 for brokerage and commissions?

Mr. Almert: As you will see in the last paragraph there, I have estimated an amount of securities the proceeds of which would be sufficient to provide cash to reproduce the property according to my estimate here. The cash requirements there are $20,735,000.

Mr. Syme: And the $700,000 brokerage and commission fees are calculated upon the total amount that has to be raised to reproduce the property and business of the company; that is right, is it not?

879 Mr. Almert: Yes, sir.

Mr. Syme: If they had put up $20,000,000 of their own money in their own scheme for their own benefit, would you have charged the public $700,000 for the use if it?

Mr. Almert: I do not know of such a case where they have done

so. It is not done in everyday practice in the conception of properties of this kind. * * * This $700,000 amounts to 4.39 per cent of $15,922,522 as a base * * * which is the figure of the total cost of the physical property, beginning with real estate on page 7 and down to and including working capital; and I have testified that a usual charge for the raising of that sum of money is 5 per cent. I have known of cases, which I have already cited, where that amount was charged.

I have not included this item of Great Falls in estimating the development cost. The development cost there is 12½ per cent of the $16,000,000, but is 13.29 per cent of the item without that. Including it as I was—I determined it several ways. I made the actual Alvord-Metcalf Computation, which is $2,220,000; and in making it comparable with the cases that I have come in contact with, some seventeen in number, before courts, commission and boards of arbitration, all of the property has been included, and in those seventeen cases the total physical value of the properties involved was $15,528,229, and the amount allowed for development cost on those properties was $1,945,977, which is 12.53 per cent. And, purely for making the thing comparable with those cases, I made the computation both ways. It is 13 and a fraction per cent leaving Great Falls out and 12½ per cent including Great Falls, and by the Alvord method of working it up, it is still larger.

The theory of this development cost is the determination of the minimum cost of attaching the business to the physical property, as stated.

Chairman Kutz: What business does the Great Falls power site bring to the company?

Mr. Almert: The same business those reels of cable have, lying down in the storeroom, that are not yet in the physical property. It is necessary for any public utility to look in advance of its needs and provide for its future.

Neither the power site nor the unused coils of wire has brought to the company up to the present time any business. On the basis on which I have determined this development cost, I have left Great Falls out of the computation by the Alvord method.

It is assumed that the incorporators of this Company, to which Congress has given a franchise to erect a plant of this magnitude in the Capital of the United States, are men of not sufficient financial connections to get this money without having to pay brokerage to others to do it for them.

The method by which I ascertained the development cost is not an arbitrary percentage. I worked it up in detail in the case of this particular property, and assuming an 8 per cent return I arrived at any amount by that basis of computation of $2,220,000; but I did not include that figure. I took a lesser figure which is an average, as I stated, of seventeen cases in which the total property owned by the company was considered, and the average of all those cases is 12.53 per cent. So, for this computation, I took 12½ per cent of the base which I have stated, which gives me $2,115,323.

If I had used a 10 per cent basis of fair return, the sum calculated on the Alvord basis would be $3,509,100.

In both he eliminated the Great Falls power site. The detail of this development cost appears in Exhibit 4, page 1234. The calculations is shown by a separate exhibit.

In a general way, these costs consists of costs of attaching the business and developing it to the point of yielding a fair
880 return on the investment, and is equivalent to the sum of the present worths of the annual deficits of actual income below a fair return during the development period; and, briefly, is the sacrifices or the loss of fair return during construction and the deficits in operation and that sort of thing until the property is completely constructed and all of the business attached. Those things are set out. The figures are set out in detail in the exhibits which I have just referred to.

Chairman Kutz: Mr. Almert, let us assume that in a case of this kind those deficits would run over a period of 10 years; and let us assume that during the second 10-year period of the company the profits were in excess of a fair return by an equal amount; do you think that excess should be taken into consideration in determining a fair value for rate-making purpose?

Mr. Almert: If the company is operating under rates prescribed by Congress or by the state, I think that the company is entitled to all that it earns.

Chairman Kutz: Let us assume that it is operated under rates established by Congress for the entire 20-year period; that the condition remained unchanged; during the first half of that period it suffered a loss; its receipts were less than a fair return on the investment; during the second 10-year period they exceeded a fair return on the investment by an equivalent amount. Under what theory should the deficit be capitalized and not the excess profit?

Mr. Almert: I think we are getting confused by taking the actual development compared with a hypothetical situation. I think that, answering the first part of your question, the Supreme Court has held repeatedly that a company under prescribed rates from a body in authority is entitled to any earnings it can bring about under those rates, and that those are not excessive earnings; but in this particular computation I have simply assumed a hypothetical construction period and made the assumption that a purchaser of the property on the date of taking can do one of two things: He can go ahead and build new property, assuming that the one in existence automatically disappears so that it won't be in his way, or he can pay the existing company the price of its physical property, plus an additional amount for going into an established business; and the measure there is his sacrifices in fair return during construction and his deficits in operation, loss of interest and such things as that.

It is not based on the sale value of the property.

As part of a reproduction cost estimate, I think it is a proper item to consider, regardless of whether the purpose is to be rate-making or sale.

Chairman Kutz: In this particular item it would be identical in the two cases?

Mr. Almert: Yes, sir. When I say "identical" I mean by that that this would be an estimate of what that would be as a minimum. The actual cost probable was greater; but it is an item which cannot be found, in the way the books have been kept. This is an estimate of what it would be as a minimum. When this method was evolved, the actual earnings of the company were taken as a basis; in other words, what would it cost to build a property in the best and most economical and quickest humanly possible period to overtake the earnings of the company. For fear there would be a discussion or question as to whether or not existing earnings were reasonable, I eliminated the actual earnings of the existing company and simply assumed the amount of money put in during the various periods, and 8 per cent thereon. So that I have left out the actual earnings, for fear that in a rate-making case, if earnings were taken into consideration and you put that element in the formula, you would be reasoning in a circle. So, I have left out that element in this computation.

881 A tabular statement showing year by year, the amounts of those deficits and how computed, is shown in Exhibit 4, Item No. F.

Chairman Kutz: Have you made any comparison, any check of the results by consulting the books of the company to see what the actual deficits were?

Mr. Almert: They are not comparable at all, Mr. Commissioner, because the company had not—did not come into being under such a short construction period as this, and would not be comparable, in my judgment. It was purely on the basis of the reproduction program which I have here assumed.

These deficits apply to property under construction, but not yet put in use. That is, the property actually in use is assumed to be earning 8 per cent; the property not in use is the property to which these deficits apply.

Take, first, the item of interest on unemployed funds. It is assumed that each year's expenditures will be provided for by demand deposits paying 2 per cent, and that more or less uniform withdrawals during the year will result in netting 2 per cent on practically half of the deposits, or practically 1 per cent of the expenditure for each year. That is assuming that the money is raised at the beginning and the funds are deposited in such a manner that they will get 3 per cent on long time deposits and 2 per cent on those that are required in a year.

You will earn 2 per cent on it that year, and there will be uniform withdrawals during that year; so that you actually get 1 per cent, but the company is to get back 8 per cent on that money. The funds needed later are put on time deposits that will return 3 per cent.

Chairman Kutz: On what theory do you assume that during the construction period the company should be allowed to earn the 8 per cent on money that costs it only 6 per cent?

Mr. Almert: We have got a hypothetical situation here, Colonel, in which the entire amount has to be raised in advance, to make sure that the money will be available when it is needed.

Mr. Syme: And the total interest charged to construction was $1,791,644 as you stated, which made an average of something over $350,000 per year?

Mr. Almert: Yes, sir.

Mr. Barbour: That item of $1,791,644 is carried into your summary of cost of reproduction at that figure, isn't it?

Mr. Almert: Yes, sir.

Mr. Barbour: It is merely figured in this cost of development by way of deduction, isn't it?

Mr. Almert: Yes, sir; so that there is no duplication of that item. In other words, this development cost of $2,115,323 is not in any wise included in his interest during construction. It is a separate and distinct item. The interest has been taken out and the amount charged to construction, and there is a charge for interest on the interest, but the capitalized sum of $1,700,000 is not repeated and duplicated.

Mr. Syme: This is not the cost of attaching business, is it; there is something in lieu of it, isn't there?

Mr. Almert: Yes, sir. As I stated the actual cost is one which is very difficult to obtain, and in a property in the way it is conceived the cost is probably greater, and not being able to obtain that from the books, and not being strictly applicable either, because this is a hypothetical situation, this has been used in a great many cases in lieu of that as illustrating what the minimum amount would be for attaching the business.

It is an estimate which in my mind would be a minimum for that purpose.

882 Mr. Syme: That is the reason I asked you the question back in the beginning of this interrogation, as to whether or not you assumed when this plant was to be constructed here, this hypothetical plant, that there was an electric light plant and industry and a public educated to the use of electric light in the United States and surrounding us on every side. You did assume that, didn't you?

Mr. Almert: I do not answer to that, Mr. Syme, because the situation which I have assumed here is what I believe would be the minimum without taking into consideration those factors which you speak of now, whether the public was educated or was not educated.

I told you that $2,115,000, which is actually used, is the average of seventeen cases in which this item was allowed. It is the average of those cases. Now, as a check on that, to see what it would be in this particular case with the construction program which I have outlined, I had these computations made here, which work out $2,220,000. I have not adopted this $2,220,000. I have adopted a lower amount, and I simply submit this as a part of my exhibits as a check to show its reasonableness. They were seventeen cases of public utilities. They were not comparable as to size with this

but they were the same character. There may be some difference but I do not think there would be for this purpose.

Alvord's method was based upon the actual earnings of those companies as distinguished from what I have used here where I have limited it to 8 per cent return to eliminate the objection that if the earnings of the company were more or less than 8 per cent there would be some objection to it.

Chairman Kutz: Mr. Almert, you believe that this amount of twenty-three million and some odd thousand of dollars, as given on page 7, is a fair estimate of the cost of reproduction of the property of this company?

Mr. Almert: Yes, sir.

Chairman Kutz: If you, in your capacity as an expert, were representing a prospective purchaser, would you advise them to buy at that figure, that is, to buy the property of the Potomac Electric Power Company at that figure?

Mr. Almert: I could not answer you that, sir. I have not attempted to determine the value of the company. It might be more or it might be less than this figure.

At the beginning of the case, before I had sufficient information on which to make an estimate, I thought that the case would develop into a purchase case probably, but later it seemed that it was going to develop into a rate case, and I have not had the time, nor has it been necessary, to make any computations of that kind. I have not been asked to do so. Eventually, I take it, that it will be necessary to determine what the value is, but up to this time I could not answer that intelligibly.

Chairman Kutz: Would the present net income of the company permit it to pay 8 per cent on this value?

Mr. Almert: I would not answer you that. I do not attempt to carry those figures in my head, and I could not really answer you what that is.

Chairman Kutz: If the present rates of the company enabled it to earn 8 per cent, with a given value, would that, in your judgment, be a fair value for the property of the company?

Mr. Almert: Not necessarily, no. There may be a study of what that company has done in the past, the circumstances under which it built up its business and acquired the earnings which it now has. It may be that it is entitled to more than an 8 per cent return.

883 Easements—Almert.

The witness will include in the valuation for the purposes of fixing rates, easements of $2,500,000, which cost the company absolutely nothing.

That is the only element here included which cannot be called a cost but a value, because other than what is paid for franchises there was no actual money expended for the acquirement of these easements.

They are included because when you come to determine the value of the property this is an estimate of value. It did not cost

the company anything directly. That part of the easements where the company goes over private property no doubt cost considerable. I have no figures on that to see what expense was incurred in getting the permit for these rights or easements, but ignoring that portion of it I know from my experience with properties of this character that all such rights do cost.

It would cost time, money and effort to secure that right, but for the rights themselves I assumed that there was no money consideration paid to Congress.

It is entirely within my conception to understand that values can be created that are higher than the costs.

The two cases which I talked about, that of the Metropolitan Railroad Company v. McFarland in the 20th Appeal cases of the District of Columbia, No. 439, and also in the 44th Appeals case, District of Columbia, 481, together with a knowledge of the action of the Commission in the Maryland cases, the Consolidated Gas case and in the Telephone cases, are the cases on which I consider there is a moral right of the corporation to a return on this $2,500,000.

I should say the value would increase somewhat in proportion with the growth of the business, and that a large concern in its elements would be more valuable than a small concern.

They would not necessarily have to be increased to the consumer. If you assume that the increased production that it would necessarily have and the increased volume did not decrease its cost of production per unit. I would think that would be so, but that would be a very illogical deduction.

As the system of distribution grows, the franchise right or easement would increase in some proportion, and that rates that might be determined in the future should take into consideration this increased franchise value.

Asked to explain his statement that "instead of calculating the interest that way you had adopted the opposite method of only allowing interest on the actual expenditures for each year pending the completion of the different units up to the time they were turned over to the operating department, would that method of calculating it have increased or diminished this item." You say: "It would have increased it to $1,899,410, or $107,766 more than the basis which we assumed," he said: Take the figure of $15,828,421, which is the total cost of property less interest during construction, and take the active four years of construction and assume interest at six per cent; so that there would be two years' interest at six per cent on that basis, or twelve per cent on the total amount, which is $1,899,410.52. That is the method that Mr. Pillsbury assumed according to my understanding of the method he used.

884 Depreciation—Almert.

The witness made no deduction for depreciation because after the work of inventory had progressed sufficiently, he made up his mind that the property was in 100 per cent operating condition and under

those circumstances for the purposes of a rate case there should be no deduction for depreciation. If it were in a sale case, if it was found that there had been neglect of a portion of the property, there would be deferred depreciation. There was no such neglect in any portion of the property. Each piece of property has a certain life and as the parts deteriorate sufficiently to be unfit for use they are replaced. But I found the property in 100 per cent operating condition.

He thinks that everything connected with the parts of this plant can be replaced and it has been replaced straight along from the time it was built wherever needed in such a way that its service life is what it was when it was bought. There is no depreciation from the standpoint of its ability to render service.

This plant is not only 75 per cent physical condition as a composite whole—there are undoubtedly parts which are undoubtedly as low as 75 per cent in physical condition, as Mr. Pillsbury puts it, simply from deterioration, age and use. That is the remaining service life. Take a pole which has been in for three or four years; it will have to be replaced in another seven years, say. But as it is there now, it is rendering 100 per cent service value.

The fact that it can render 100 per cent service value does not show that it has not depreciated and won't have to be renewed at the end of its life.

But it does not depreciate from the standpoint of what must be provided out of earnings to make replacements when they are necessary.

In a purchase case, the witness would take such depreciation into consideration. If the property had been neglected, in any part, so that it had not been maintained the way it should be to render 100 per cent service value, I think that an amount should be included, or, rather deducted to make good that deferred depreciation, to put it in shape to render 100 per cent service value.

If the plant was ten years old, there would have been replacements of parts, wherever worn out, by new ones; so that the property would be maintained in 100 per cent service condition.

He made no estimate of the service life of the component parts of the property of the rate of depreciation. He has looked over Mr. Pillsbury's rates of depreciation and knows what has been done in other cases and they are approximately fair.

So long as the property was in condition to render 100 per cent service, the question of depreciation did not enter into it at all, not for this purpose of determining the reproduction cost or elements which I thought were required by paragraphs 6, 7 and 8 of the act. There is a place where that element comes up and is very important later, when it comes to determining what is a fair and reasonable amount which should be allowed in earnings to make good the losses in the Company's investment devoted to public use, when they occur. That, I take it, has then nothing to do with this proceeding. What I mean by that is that when I had satisfied myself that there was not anything in connection with this property that had been neglected so that there was deferred depreciation which would have

a bearing on its ability to render service, I believed that it was not a matter of consideration under those paragraphs.

Mr. Henry M. Byllesby of H. M. Byllesby & Company was at one time connected with the Potomac Electric Power Company.

A plant 10 cars old is as good as one which is new if it has been maintained; if neglected, it is not.

The witness received a retainer which covered the entire period—not only for the Potomac Company, but the Washington Company as well—which amounted to $5,000, plus $50 a day for the actual time spent in Washington; no allowance for the time in
885 Chicago or elsewhere working on this; plus a per diem fee for five of his principal assistants in connection with it, plus the actual cost of the employes whom he employed here locally.

No portion of his compensation was contingent on the result of the action of this Commission; that being without the beliefs of his religion in connection with such matters and his belief of what is right and just, and against the principles and ethics of his profession.

He cannot state the exact amount received by him and his associates in this particular case; but for the Washington Railway and the Potomac Electric Power Company something over $100,000.

He used to come down here twice a month, and spend anywhere from four or five days to ten days on each trip when he came down here, and in Chicago he devoted a great deal of time to it, but did not keep any record of it, because he received no compensation for that other than a retainer.

During the two-year period, 1914 to 1916, he devoted between a third and a half of his time to the two companies.

The bulk of that sum of $100,000 was for payments made for a large staff of local employes he had here on which he received no profit.

886 EDMUND P. EDWARDS was introduced as a witness on December 8, 1916, and stated he resided at Schenectady, New York; was assistant manager of the Lighting Department of the General Electric Company, which is a manufacturer of practically everything that is used in the electrical business. Employs, approximately 60,000 and his connection with the business of that company affords him an opportunity to become familiar with prices and matters affecting prices and the range of prices; that the commerical department with which he is connected has the fixing of prices for electrical apparatus sold to public utilities.

The principal elements that enter into the manufacture of electrical appliances, are the raw materials, labor and general overheads. The raw materials are copper, brass, steel, iron, tin, lead, varnishes and cloths used in insulating materials; that he is acquainted with the trend of prices as of July 1, 1916, as well as of the present time, as compared with ruling prices in July, 1914. He cannot state from recollection any specific prices. Based on his judgment, on his experience and his knowledge of market conditions affecting the elements that enter into manufacture and supply and demand. Based upon that he would say that the trend of price, as of July 1, 1916, as

compared with July 1, 1914, on rotary converters, has been a 30 per cent rise in price and at the present time a rise of 40 to 50 per cent; on transformers, from 25 to 30 per cent as of July 1, 1916, increase, and from 40 to 50 per cent increase over July 1, 1914. On meters, there has been a 15 per cent increase as of July 1, 1916 and 25 to 35 per cent as of the present time; that is, July 1, 1914, to the present time.

The second figures in each case that I give cover the whole period and not an increase over July of this year.

There is an increase of 15 per cent from July 1, 1914, to July 1, 1916, and an increase of from 25 to 30 per cent from July 1, 1914, to the present time. I might explain there that this is a greater jump in this particular instance than is indicated by the other figures that I have given. That is because this is one of the classes of devices which is constructed for a future delivery basis. The prices may not have risen on those contracts 25 to 35 per cent, as they may be considerably lower than that, but if we were entering into a new contract today the prices named in the contract would be from 25 to 35 per cent over what they would have been in July, 1914.

He would be willing to say that a year from now prices would be at least as high as they then were. You might call it a guess. I think it is an educated guess.

He thinks his firm has enough business in sight to warrant them not only in guessing at it, but going ahead and increasing their facilities to take advantage of it, which they were doing.

He bases that opinion upon the fact that the General Electric Company has booked orders well up into 1918 for what he would term primary apparatus, that is, turbines, water wheel driven generators, engine-driven generators, prime movers without generators; secondary apparatus such as rotary converters, motor generator sets, switchboards, frequency changers, synchronous converters, transformers, regulators, electrical measuring instruments, and so forth and so on, and I might include lamps in what is termed secondary apparatus. We have orders booked for primary apparatus, which indicate the necessity for the purchase of secondary apparatus; in other words, our facilities in the larger types of primary apparatus are largely taken up through 1918; that the relation of the primary apparatus to rotary converters, frequency changer sets, motor generator sets and transformers based on an average obtained from an actual
887 survey of from ten to a dozen public utility companies is in the proportion of two and a quarter to one. In addition to that, and not included in it, are motors, lamps, switchboards, and so on and so forth, which I do not believe anybody could give the proportion of except through a most exhaustive survey, and I would not even hazard a guess. It is considerably in excess of two and a quarter to one, but limiting the statement to the items just mentioned as they relate to primary apparatus installed, and basing it on the kilowatt capacity, on the average the actual installation is about two and a quarter to one. Therefore, if we have booked 100,000,000, or not to express it in dollars, but in kilowatts in the capacity of the prime movers, we know the purchasers of the apparatus will have to pur-

chase at least two million and a quarter kilowatts of secondary apparatus in order to utilize what they have already purchased in prime movers.

It has been our experience that the purchaser of electrical apparatus will buy his prime movers or primary apparatus is a better statement—I do not mean prime movers—but he buys his primary apparatus considerably in advance of the purchase of secondary apparatus. That is because it takes much longer to manufacture and deliver the primary apparatus than it does the secondary apparatus, and there is always an appreciable lag between the purchase of primary apparatus and secondary apparatus. If, therefore, our facilities for the manufacture of primary apparatus are taken up well into 1918, there is every reason to believe that our facilities in secondary apparatus will be taken up beyond that period, although they are not now. That is, you cannot get a turbine of large size until 1918. You can get rotary converters and motor generator sets in a considerably shorter period, but as the demand catches up our facilities will be fully occupied.

This secondary apparatus that is being manufactured now is going out to fill primary apparatus that has already been sold. I should say if we stopped taking orders today our facilities would be fully occupied about at the rate we are going now for the next two years.

Exercising his best judgment and his knowledge of the market and market conditions, he sees no reason for apprehending any recession in prices in any reasonable time in the future.

Basing his opinion on those same considerations, he would say if there is any change in prices it would be toward an increase rather than a decrease.

When he left Schenectady his firm was taking orders for delivery in the latter part of 1918. How long that condition would last he was unable to say. He knew that it had been seriously considered as to whether or not they should continue to quote on this major apparatus for deliveries much later than they are now scheduled for.

Their prices are based on their best judgment as to what they can sell at and make a reasonable profit.

So far as raw material is concerned they always enter into contracts with the manufacturers of raw materials for certain prices. The answer from those manufacturers today—speaking of the larger ones like the Steel Company—is that—"We will fill your requirements as provided for in the contract so far as the price is concerned"—which is all that the contract contemplates—"but we cannot tell you even approximately when we can make delivery of the apparatus." Consequently, we are forced to purchase raw material at prices considerably in advance of those covered by those contracts.

This is an unusual situation. He has never known it to exist before. He has been informed that a number of steel manufacturers stated that they are about in the same position that we are. If they stop taking orders today their domestic requirements would occupy their facilities for at least two years.

888 There has been a 20 per cent increase for July 1, 1916, over a two-year period, and from 30 to 45 per cent increase as of today over July 1, 1914.

Various other implements were reported as advanced as follows:

20 per cent for the two-year period, and 30 to 45 per cent to the present time for constant current transformers;

25 per cent for the two-year period, and from 40 to 50 per cent for the two and a half-year period for induction potential regulators;

15 per cent for the two-year period, and from 40 to 50 to date for electric motors;

20 per cent for the two year period, and 35 to 45 per cent to date for turbo generator sets;

30 per cent for the two year period, and from 40 to 50 per cent for the two and a half-year period for motor generators;

50 per cent for the two-year period, and from 60 to 75 per cent for the two and half-year period for reactance coils; that, more than any other item in this list, is affected by the cost of copper.

Asked what he would say as to the cost of labor which goes to manufacture these articles, appliances, etc., he said:

"That is, I should say, a harder question to answer with any degree of accuracy than the percentages I have applied to these other items. Direct costs have increased from 10 to 20 per cent, but the quality of the labor has decreased in an inverse proportion, and you can make almost any assumption you please as to the increased cost of labor, which is one of the big factors in the cost of manufacture. That is to say, we will pay a man a given price per hour or per day for performing a given task, and as of two years ago that man or a man at that price would have taken considerably less time to complete the operation and would have done it probably better, or at least with fewer mistakes that would have to be rectified than the laborer of today.

That is, in addition to the actual out-of-money per diem or per hour payment to the labor, on an average the output per man has decreased, both per dollar and per man. We pay $5.00 per day for a certain class of work, whereas, it might have taken us one day to do it several years ago, it may take us a day and a half or two days to do it now.

Witness has a very distinct impression that labor is less efficient, but has not as to how much less it is.

He has a letter stating in percentages the increases that have taken place between July 1, 1914, and July 1, 1916, prepared by his purchasing department as to the cost of raw materials that enter into the manufacture of these appliances. The figures are prepared by the purchasing department. The letter was issued by the secretary of the sales committee, which is the governing body of the commercial policy.

The letter was sent out November 2nd. As an officer of the company he knows this, although not directly connected with the purchasing department. He thinks that the figures can be traced; they are of record.

The letter was read into the record as follows:

"Schenectady, N. Y.,
November 2nd, 1916.

"File under Class '1' (General Instructions).
Serial No. 305.
Subject: Increasing costs and selling prices.

"During the past twelve to eighteen months, as you well know, costs of all materials and labor entering into our product have increased enormously, necessitating increases in our selling prices. This fact is, we believe, realized by the majority of our customers, but there may be others who are not so familiar with the advances in the cost of materials, and to such, the following list, showing
889 the increases in certain lines which enter largely into our product, will be enlightening:

"*Per Cent Showing Increase in Cost of Various Raw Materials Used in Our Product, Based on Costs in Effect July 1st, 1914, and Nov. 1st, 1916.*

"Material.	Per cent increase.
Copper & Brass	115%
Sheet Steel	75%
Cold Rolled Steel	150%
Magnet Steel	70%
Steel Wire	120%
Small Forgin-s	130%
Large Forgin-s	80%
Turbine Bucket Wheel Forgings	100%
Aluminum	75%
Pig Iron (Gray Foundry)	60%
Pig Iron (Steel Foundry)	80%
Pig Lead	95%
Pig Tin	25%
Platinum	150%
Slate	50%
Marble	35%
Soapstone	35%
Shellac	95%
Crude Rubber	30%
Nap-tha	70%

"The difficulties in securing an adequate supply of raw materials, machine tools, and tool steel are still very great and are further increased due to the growing congestion of all transportation lines and the impossibility of obtaining prompt deliveries. On account of the difficulties encountered in securing materials under our contracts with suppliers, we are very frequently obliged to go into the open market and purchase for spot delivery. In such cases, we are compelled to pay premiums of from 50 to 100 per cent in excess of our

market prices. As our selling prices are based upon our contract costs for materials at the date of taking the order, we find that our estimates are greatly exceeded in many instances by the actual costs which we incur in our efforts to meet our scheduled shipments.

"It is becoming increasingly difficult for us to place contracts for materials, more than three to six months ahead, and in some lines we cannot place orders for more than our immediate requirements, i. e., such stocks as we are able to accept for immediate delivery and provide storage space for.

"We believe that the situation, as outlined above, is well known to most of our customers—and that they have not been surprised at such increases as we have been obliged to make.

"Do not hesitate to utilize this information in your negotiations."

This letter was signed by Mr. Edward G. Waters, Secretary of the Sales Committee.

An arithmetical average of market prices through a period of years would not give a true average of the prices paid by utilities for their plants, because prices vary, I think, more in the electrical industry on conditions existing at the time than in most any other utility; in other words, they follow the law of supply and demand in a very variable way. In times when it is hard to finance the purchase of new apparatus the central station—I speak solely of the central station, because that is my end of the business, lighting companies and not power companies—will hold off in the purchase of apparatus as long as they can or until they have to have it. They will run too close to the danger point and tax their apparatus to its capacity. Necessarily when conditions such as that prevail,

890 prices are low, with a very meager profit in those prices because we have facilities that we must utilize whether we can make a profit on them or not. When the situation changes and they are in a position to finance purchases, then they go into the market and purchase liberally, and that means that we can get a fair price. In other words, when prices are low there is but little buying usually by utilities, and when prices are high they are high largely because the utilities are buying. The biggest years, from the standpoint of output, are usually at our best prices.

891 Roscoe Seybold, another witness, was called on behalf of this company and introduced on the same day.

Testified that he resided in Pittsburgh where he was employed in the Westinghouse Electric & Manufacturing Company, in the commercial department—manager of the price sections of the railway and lighting department and of the power department.

The business of that company is the manufacture of electrical apparatus and appliances and of prime mover apparatus. The company has 30,000 employes. He has been in the price section of the sales department since April, 1908, and has been the manager in the pricing of the power apparatus, large apparatus, used by the central stations, since October, 1909.

He can give very close to the exact figures up until the first of

December, from July 1, 1914, and approximately to July 1, 1916, as to the various appliances manufactured by his company.

Copper, according to the records he has from July 1, 1914, to December 1, 1916, increased 148 per cent; lead, 85 per cent; tin, 19 per cent; tin plate, 83 per cent; black sheet steel, 121 per cent; Bessemer pig iron, 132 per cent; basic pig iron, 130 per cent; Bessemer billets, 190 per cent; steel bars, 168 per cent; tank plates, 286 per cent; beams, 168 per cent; cotton tape, 250 per cent; asbestos tape, 485 per cent; filter boards, 60 per cent; fiber, 95 per cent; Micarta paper, 120 per cent; spelter, 165 per cent.

Their earned rate of labor, according to the best of their records, from July, 1914, to December 1, 1916, is a 25 per cent increase. That is the rate their employes get taking into consideration their flat hourly rate. Then a bonus is paid to them, and a premium on piece work.

The way those accounts are kept they would reflect inefficiency in the labor only indirectly. If the labor were more efficient, they would earn a greater bonus and a greater amount of the piece and premium work. The bonus is a punctuality bonus and a bonus for deliveries. So that if a man was below standard, he would get his straight hourly rate; he would not earn anything above his hourly rate. As a practical question, there has been a decrease in efficiency due to the fact that we have to build up our organization with a marked decrease in the number of employes.

He has made a study of the relative increase of the apparatus that they construct from this material with this labor, and that the course of the prices, say, on rotary converters as between July 1, 1914, and December 1, 1916, has been approximately 35 per cent. By "35 per cent" he means within one per cent of that; transformers, 30 per cent; belted generators, 25 per cent; engine type generators, 46 per cent; D. C. engine type generators, 40 per cent; motor generator sets, 40 per cent; inductor motors, 33 per cent; turbo-generator outfits, 40 per cent; switch-boards, 30 per cent, approximately.

He believes these prices to be stable, so far as time is concerned; that, if there is any change, it will be an increase, which will probably come rather shortly, because the raw material market is on the increase at present. Copper is on the increase because their capacity is over-sold. His company quotes prices for future delivery only in those cases where we can protect ourselves on material which they do when they can because we believe in increasing the raw material market; that if they thought the market was going down they would take a chance on it.

892 On larger apparatus, they are sold well up into 1918. They have not declined orders to deliver beyond that time.

1919 is rather a long ways off to hazard a guess—that is three years off—but he really expects the prices will be about at the present level. The termination of the war might mean a spasmodic fluctuation but it would not materially affect the level, because the using power of the country has to be supplied. They have not bought for a period of years prior to, say, 1915. That supply has to be filled, and he believes that the demand from the export trade will be prac-

tically as great after the war as it is during the war, t-ough probably of a different character. They are making an extension to the turbine department, as well as putting in a rolling mill, in order to buy scrap copper and roll it for their own use, and bid good prices for the copper if they have any. Scrap copper has been bought as high as 30 cents a pound. His company has bought some at 27 cents, to his knowledge. His company is now taking orders for delivery in 1918 based on present prices by the purchase in the open market of raw materials which it has to purchase on long delivery, which will be necessary to meet those long delivery contracts.

An arithmetical average would not give a true average of the prices paid by public utilities for material in his line of business, because they are not buying equal quantities during the period.

Prices were low in 1914 because the factories, manufacturers, were going after the business in order to keep their factories full and in order to maintain their organization through lean years.

Machinery or appliances necessary for a public utility could not be furnished today at prices considered fair in 1914, unless the manufacturer had protected himself on material and labor under conditions existing at that time. It would not be possible for him to do that now because of labor conditions.

Mr. Barbour: Do you know whether or not an engineer in trying to build up the price of machinery of appliances or material in which copper is used, for instance, or steel either, for that matter, and using a unit price based on the quoted market price of the raw material at the time and adding to it only the recognized cost of labor to fabricate it—whether or not he would arrive at the actual price that was charged by the manufacturers for that fabricated material?

Mr. Seibold: They would not. * * * The loading of their shop would be an element that would be read into their price; that is, a manufacturer in order to protect himself would have to add something to the base price of the material. The mere fact that you can get the base copper, the crude copper, is no assurance that you can get the fabricated copper at the base price, plus the labor cost in it. Therefore, in making a price a manufacturer would have to protect himself against that and "has to take a chance on the labor of fabricating."

If the ingot base were 30 cents, the manufacturer would not add over a cent and a half or two cents as a base in quoting a price to protect himself. That difference is between the raw price and the price that is carried into the fabricated copper; that has fluctuated over a small degree in this period.

The period from 1907 to 1914 was, in my judgment, a low period for copper. It was a period of low prices and hard money, and they had, therefore, not supplied themselves with the apparatus they needed.

You would hardly expect the life of a transformer to be twenty or twenty-five years with the rapidity of improvement in the design of electrical apparatus—my judgment would be around 10 years.

893 There is no such condition in the electrical trade that you sell all the country for 10 years and then hang up and go on a vacation for 10 years more. I know of no company that has purchased from us on that basis. If the whole country were operating on that basis, we could not do any business. New uses are being developed every day for electrical appliances and go into businesses where it has never been used before and are supplanting other methods of power. The country is growing steadily and those things naturally do create a demand. And, notwithstanding that, there are these periods of slack demand and periods of great demand and finances govern the purchasing power of the operating company, and if they cannot get the money they let a unit run until they can get the money until dire necessity forces them to buy.

My references were to business as a whole; not the business of any individual company. According to my recollection the general market prices fluctuated between 1906 and 1907; 50 per cent of the fluctuation in copper was between 1914 and 1916.

In the opinion of this witness present prices are the natural result of the present conditions. The easy money market and the increased demand—there was none in July, 1914, nor was there any easy market or big demand in August, 1914. We did not feel the effect of the rise in the section of the factory I am connected with until well into 1915.

The witness does not believe that there will be any recession in prices within any reasonable number of years in the future, and that on all contracts that his company is now making for future delivery it is protecting itself by actual purchase of material, as far as it can. There can be no better evidence given of the policy of the company in that regard and its thought on the subject.

894 Louis Simon, being sworn in on December 13, 1916, testified as follows: that he resided in Washington for over 12 years; was a dealer in metals of all description, new and old; and the fact that he is dealing in them more or less continually puts him in touch with the market every day.

He is familiar with the prices and the course of prices in the metal market for the past 10 years. He has made a comparison of prices of metal between the year 1914 and 1916. Buys both scrap and new metals. In 1914, he was paying for scrap copper, 11 cents, and was unable to get that for it in the way of scrap. He had to store it. New metal at that time was selling in the neighborhood of 12.5 cents. He bought lead during the month of July, 1914, for $3.35 per hundred pounds; copper for 11 cents * * * very hard work to get money back at that, but in order to protect the business he was willing to invest his money and put it away because he felt the market was so extremely low that he could not lose anything by it; that it was bound to come back. New lead, that is pig lead, was lower in 1914 than it was during any period for the last 10 years.

Pig iron, No. 2 foundry, in 1914, was selling in the neighborhood of $13 per gross ton. Today it is in the neighborhood of $21.50 per gross ton; that is new pig iron. The Pennsylvania Railroad

during the years of 1913-1914 stored all of their material. They would not sell any scrap rail. They bought very little. There was a general depression. They could not get a fair return for their scrap; knowing it was worth more money, they held it for higher prices—not only the Pennsylvania Railroad but all of the railroads of the country. Their lists that came out every month to bid on scrap material were all cut down and held back, and while they asked for prices they did not dispose of the material.

The copper price of new electrol-tic copper for the year 1916 was in the neighborhood of 20 cents, on the basis of 20 cents for new copper for the average of the year. In 1907 it was 21 cents. Then it dropped down again, and one day it went to something around 13 cents. In 1914 it was around 13 cents. The book I am quoting from here is a book published by the American Metal Market Company, and it is a paper that is published daily quoting actual transactions on the New York Exchange, and all contracts are made by this paper, so it must be accurate according to the market of any day.

In 1906, the average for the year was $19.77½ for copper per hundred pounds. This is the paper of yesterday based on actual transactions, and the same class of material yesterday was $35.25 per hundred pounds.

In 1907, it went to $20.86 per hundred pounds; that is the yearly average.

The average for 1908 is $13.39; the average for 1909 is $13.11; the average for 1910 is $12.88; the average for 1911 is $12.55; the average for 1912 is $16.48; the average for 1913 is $15.52; the average for 1914 is $13.31½; the average for 1915 is $17.47; the average for 1916 to date, is in the neighborhood of 29 cents. As to that 29 cents, I may be off a fraction of a cent.

I have bought scrap copper within the last week at 31⅛ cents per pound. I offered to make a contract with three companies in this city last week for the entire year of 1917, taking what they make for the year at 30 cents a pound for the entire year of 1917. Neither of them were willing to accept my proposition, figuring that the market would be stronger if I wanted to pay that.

The lead market has had a very sudden jump again. The lead market has gone to 8 cents for new lead f. o. b. New York in car load lots. Last week we bought lead for $6.75 in the way of scrap material. I sold the District 10,000 pounds of lead last week at $7.12. $7.48, I should say, is the price at which I sold them lead. I sold the District of Columbia last week 10,000 pounds of Omaha & Grant lead at $7.73 per one hundred pounds. They bought no lead in 1914 whatever. I looked that up. But in 1913, the District bought 250,000 pounds of lead, for which they paid $4.59.

895 That was in 1913, in October.

In July of 1916, the District bought 100,000 pounds of lead, in July of this year, for which they paid $7.12, the lead price, f. o. b. Washington, per hundred pounds.

Lead in 1906 was $5.66 per hundred pounds,
1907 5.38
1908 4.23
1909 4.30
1910 4.49
1911 4.46
1912 4.48½
1913 4.40
1914 3.87
1915 4.67½

That is the average for those 10 years. 1914 was the lowest of the entire lot there.

The average of the present rate for 1916 will run somewhere around 7 cents. Take foundry iron is the best definition of it.

1906 was $18 per gross ton.
1907 was $22.07 "
1908 $15.05 "
1909 $15.50 "
1910 $14.95 "
1911 $13.60 "
1912 $14.26 "
1913 $14.87 "
1914 $13.02 "
1915 $13.81 "

On today's market it is between $31 and $32.

On July 3, 1916, it was $19.20 to $19.45 on copper, $26.25 per hundred pounds; lead $7.00 per hundred. All of these on transactions of July 3rd, 1916, actual transactions. Prices in the metal market were not affected by the rumors of peace on yesterday.

When I tried to contract for copper that was made by three corporations in Washington last week at 30 cents for their scrap for the year I was not doing it from a speculative standpoint. I can sell it today to one of the largest producers in the country at a profit, and he is willing to take the entire output for the year, and I believe they will not be any cheaper for several years to come. My reasons are that you cannot buy. You cannot go into the market and place an order for it, which I have been trying to do, for the last quarter of 1917 for under 33½ cents. I am buying copper wire bars, that is, in the form of a bar that they fix before it is drawn into the wire, and I was asked, by one of the largest producers of copper, 38 cents a pound f. o. b. Tottenville, Staten Island, for it last week.

The Baltimore Copper Works will absolutely not take any orders for delivery for the first six months of 1917 at all. They are filled up with as much business as they can take care of and do not want any more business.

This paper quoted some little time ago that the capacity of the mines and producers of this country was approximately two-hundred million tons of copper per year, of which 90 per cent had already

been contracted for the year 1917, leaving only 10 per cent of the entire production to be sold.

There has been quite some advance in prices between July 1st, 1916, and the present time.

On July 3, 1916, electrolytic copper sold at $26.50 per hundred pounds. On December 12, 1916, $35 to $35.50 per hundred pounds.

There were two prices on lead; the trust price and the outside price. The trust price sets price here today at 7.5 cents. You cannot get any to buy. You cannot buy one dollar's worth of it at 7½ or 7¾. You cannot get the second hands in these same commodities by paying a premium on them. The outside price of lead today is $7.80 to $8 per hundred pounds.

No. 2 foundry iron, July 3, 1916, was $19.20 to $19.45 per gross ton * * *

On December 12, 1916, the price was $30.95 to $31.95 per gross ton f. o. b. Pittsburgh.

The composite metal price, that is your brass that you folks use quite a lot of. They figure it out here on the composite metal price that on July 3rd, 1916, one pound of it would cost 15.912 cents.

On December 12, one pound of it would cost to manu-
896 facture, that is, the material that goes into it costs 18.865 cents.

897 JAMES L. MARSHALL, another witness on behalf of the company was sworn in and testified that he resides in Washington; is a general building contractor with an experience of 20 years in Washington.

That some times his business runs up to as high as three-quarter millions per year.

Now constructing the Southern Railroad Building, 13th & Pa. Ave.

Is familiar with prices of building material and labor.

The only way he can make a comparison between, say the prices of July 1, 1914, and those of July 1, 1916, "was to classify one particular building that was started in the spring of 1915, and to compile those figures. As I had my estimating sheet of that building I simply got that building and the increased prices of all the material as of the present time.

The building referred to was the addition to the Potomac Electric Power Company's office building for which he had a contract in the spring of 1915.

These are the cost prices. On cement and concrete work at that time for that particular building it amounted to $9,318. The increase on that line since would now make that cost $11,927.

Structural and ornamental steel was $6,875. There has been an increase in the structural and ornamental iron of 175 per cent, which would make today to furnish this same material $12,031.25.

The other increases in the various items are as stated in the table as follows:

	Estimate.	Percentage.	Increase.	Totals.
Cement and concrete	9,318.00	28 %	2,609.00	11,927.00
Structural Steel, Ornamental Iron	6,875.00	175 %	5,156.25	12,031.25
Brick work	8,500.00	20 %	1,700.00	10,200.00
Stone "	2,700.00	15 %	404.00	3,105.00
Lumber	3,000.00	15 %	450.00	3,450.00
Mill work	3,950.00	25 %	987.50	4,937.50
Painting	968.00	25 %	242.00	1,210.00
Plumbing	2,149.00	70 %	1,504.30	3,653.30
Tile Marble and slate	1,832.00	30 %	549.60	2,381.60
Glass	748.00	125 %	935.00	1,683.00
Tin and Gal. Iron	733.00	150 %	1,099.50	1,832.50
Slag Roof	160.00	60 %	96.00	256.00
Plastering	3,650.00	60 %	2,190.00	5,840.00
Electric Work	2,080.00	50 %	1,040.00	3,120.00
Hardware	400.00	100 %	400.00	800.00
Heating	2,633.00	50 %	1,316.50	3,949.50
Labor	4,300.00	25 %	1,075.00	5,375.00
Elevator	2,250.00	37½%	843.75	3,093.75
Vault doors	1,237.50	30 %	371.25	1,608.75
T. Cotta Partitions	1,260.00	40 %	504.00	1,764.00
Metal Weather strips	287.00	30 %	86.10	373.10
Rough Hardware	310.00	100 %	310.00	620.00
	$59,340.50			$83,211.25
	23,870.75			
	$83,211.25		$23,870.75	

an average increase of 40 per cent.

The increase in labor has been 25 per cent for skilled mechanics and carpenters, and in laborers it has been 33⅓ per cent on the original cost.

898 SAMUEL J. PRESCOTT, another witness, was sworn in and testified he resided in Washington, D. C.; was a general contractor and builder; engaged in that business in Washington since 1891; that his annual operations would go up sometimes to $10,000,000, and sometimes less. He had built recently the Harrington Hotel and the Hotel Continental; had done some building for the Potomac Electric Power Company but does not recollect the latest contract as to that.

Asked to give a comparison of prices prevailing in Washington, say, July 1, 1914, as compared with approximately the present date, whether July 1, 1916, or down to date, expressed in percentage, or in actual figures, he replied that prices for the past two years had increased about 75 per cent, generally speaking.

"The average increase on an ordinary building would be about 25 per cent; some buildings would be more and some buildings would be less.

The difference in cost between the various parts of a building in 1914 and at the present time are approximately as follows:

Excavating has increased about	20 per cent.
Concrete foundations and concrete surface work	20 per cent.
Reinforced concrete	25 per cent.
Brick work	15 per cent.
Stone work	10 per cent.
Structural steel	100 per cent.
Miscellaneous iron	30 per cent.
Sheet metal, tin and iron	50 per cent.
Sheet metal, copper roofing	100 per cent.
Slate roofs	10 per cent.
Slag roofs	10 per cent.
Lumber	15 per cent.
Carpenters' labor	25 per cent.
Ordinary laborers	20 per cent.
Mill work	10 per cent.
Ordinary hardware	50 per cent.
Plastering	17 per cent.
Painting	25 per cent.
Glass	55 per cent.
Plumbing	33 per cent.
Heating	20 per cent.
Electric work	15 per cent.

These percentages apply to the various classes of materials in place in the building complete and that in estimating for actual work to be done as of the time of his testimony, he would use these increases as compared with 1914 prices.

That according to his experience, there was a little difference in

the cost of the construction of buildings of the character referred to from June, 1913, to June, 1914. The cost was less in 1914 than in 1913. Practically the same in 1912 as it was in 1913; little higher in 1912 than in 1911; in 1910 there was a gradual increase until about 1913. Then there was a little depression in 1914, and then it began to raise aagin, and — a sudden and abrupt raise from 1914 to the present time.

Chairman Kutz: Mr. Prescott, would you characterize the prevailing prices as normal prices?

Mr. Prescott: Under the present condition of the country, yes, sir; on everything, unless it is steel. On labor, for instance, there has been a gradual increase on labor from year to year; a little raise each year right along in the labor situation. It is not the raise in price of what we are paying the mechanics; it is the scarcity of mechanics. Consequently, we cannot get skilled mechanics, and it costs us more to do the work.

Practically speaking, he believes that the present prices have come to stay. He does not think it possible to move brick and sell them on the market at any price cheaper than they are today, at any profit; and does not think the price of lumber will be any less but will be higher. There has been a gradual cutting out of lumber, and we have to ship it further. I used to cut lumber in Virginia and North Carolina. Now the freight rates are more.

899 J. KAPPEYNE, a witness heretofore introduced, was recalled and testified as follows, concerning an effort between himself and Mr. Williams of Mr. Almert's staff to locate the difference and differences in the price cost sheets mentioned on pages 3173 to 3174 and in the letters of July 28, 1916, August 4, 1916, September 9, 11, and 12th, 1916, October 20 and October 30, 1916, which letters had been heretofore introduced, and together with Mr. Kappeyne's report designated as Exhibit No. 10.

Mr. Syme: Mr. Kappeyne, this purports to be a report which you addressed to Mr. Charles L. Pillsbury, Chief Engineer of the Valuation Bureau of the Public Utilities Commission. I will ask you if this is the original report which I have here in my hand.

Mr. Kappeyne: It is and the matters and things contained therein are accurately and truly stated according to the best of his knowledge and belief; and copies of letters written by Major J. L. Schley, Executive Officer of the Public Utilities Commission, addressed to the Potomac Electric Power Company on August 22, August 31, and September 11, 1916, are copies of letters actually sent by him in connection with this particular matter; all of which were then introduced, together with the replies thereto.

The first item applies to office building at 14th and C streets. We did not arrive at any definite conclusion. Mr. Williams submitted a letter from the Inspector of Buildings, which merely stated that the foundation should be increased. We then went to the Building Inspector, and he gave me some figures on bearing capacity of the soil. From these figures I designed new foundations, and I found that the figures submitted by Mr. Almert are exceedingly liberal

and are somewhat in excess of what is absolutely necessary; he arriving at total cubic yards of 178, and I arriving at total cubic yards of 113.

Mr. Pillsbury's report had called for 35 4/10 *per* cubic yards at $5.03, while Mr. Almert's report has called for 178 cubic yards at $7.00.

No effort was made to adjust the unit price. "The matters of unit prices has not been taken up."

The second item: An error was made in the Pillsbury report. The field sheets showed distinctly that there were 9 footings; but in making the computations the factor "9" had been omitted. Therefore, in my opinion, the 221 pounds should be increased to nine times that figure. Besides that, due to the enlargement of the footings, some more steel should be included than was originally contemplated, which would bring the quantity up to 3,974 pounds, which is practically what Mr. Almert asks.

On item No. 3 no error or discrepancy exists. This is merely a matter of calculating quantity; Mr. Pillsbury having taken the actual number of brick, while Mr. Almert has taken a somewhat short-cut method.

There is a party wall between the old office building and the new office building. Mr. Almert's figures included the party wall, and our figures did not include the party wall in this building, but did in the old office building.

That old party wall was in the old office building. That same wall is in the new building now and that is where Mr. Almert carries it. It is not an error on Mr. Almert's part at all. It is merely a matter of classification. One engineer assigns the wall to one building, and the other engineer to the other building, but Mr.
900 Pillsbury figures the old building to be out of existence by this time. He depreciated it so that it would amount to nothing at the end of one year. The building has been torn down, but the party wall is still there. By calculating it that way, the company loses the wall.

Mr. Williams' report is perfectly correct. He acknowledges that the company's estimates were in error with the exception of the item of the party wall.

Item No. 4 is "Painting." The unit prices as calculated by Mr. Pillsbury do not provide for mahogany finish on the third floor, but there is doubt in the mind of the witness whether there is any mahogany finish.

Mr. Barbour: Do not you know that there was a bill of extras for that work, and that the amount of $120 was paid extra, over and above the estimate?

Mr. Kappeyne: Yes; but that might be because it was finished in yellow first and that afterwards it was finished in brown. But this is merely an assumption on his part. It would not appear in the reproduction theory.

He has nothing to add to Item No. 5 or 6 and has no objection to what Mr. Williams said in respect thereto.

If owned by the company, he thinks the telephone sets ought to

be included, but he does not know whether these telephone sets are in the office building or not. They are not included in the Pillsbury report.

The difference in the items themselves grows principally out of unit prices.

He desires to add nothing to Item 7. He checked the quantity. Mr. Almert reported 19,000 square feet when he meant to say "board feet." 19,000 board feet corresponds to Mr. Pillsbury's 13,000 square feet.

He does not wish to add anything to Item 8.

Mr. Kappeyne raised Mr. Pillsbury's figure from 22,000 to 29,618, while Mr. Almert claimed 29,620.

Item No. 9 dealt with unit price of concrete and was not taken up.

Wishes to add nothing to Item No. 10.

Here an error was made in typewriting when transcribing from the priced summaries to the final report. We have an item in the final report now which is "Columns," followed by a certain number of pounds, which should read "Tees, Hangers, etc.," and the item of Columns was, therefore, omitted and should read, "Columns, 20,317 pounds," which would give us a total quantity of steel, including cast iron, of 146,863 pounds, as against Mr. Almert's estimated weight of 141,253 pounds, which would make 5,610 pounds more than Mr. Almert asks, and 20,317 pounds less than the total increase carried by Mr. Pillsbury under structural steel.

He desires to add nothing to Item No. 11 which deals with unit prices; nor to Item No. 12 which dealt with fly screens.

Mr. Barbour: Would not the fact that those screens cost nearly twice as much as Mr. Pillsbury allowed for them, exclusive of installation, indicate that there was something wrong with your unit price?

Mr. Kappeyne: That would depend on the conditions under which that actual cost was paid. I do not know what it was July
901 1st, 1914, if it was on a wholesale basis, or just an extra thing they had to get in a hurry. I could not say, as covered by unit prices.

Does not wish to add anything to Item 14. There was really no discrepancy; the two reports correspond on this point.

On Item No. 15 the main discrepancy exists due to Mr. Almert assuming 15-inch I beams, as against Mr. Pillsbury assuming 12-inch I beams. As these beams are headed and not open to inspection, and as the plans do not show what size these beams are, I do not see that anything can be done about it.

In my personal opinion, I do not know of any material difference between the 12-inch and 15-inch I beams. I think one is as good as the other.

There is no way by actual inspection to clear this matter up.

On item 22 we are in error. We applied, inadvertently, a pound price to a ton quantity. There is no discrepancy in quantity at all, as far as I can see. It is merely a matter of unit price, where we admit that we applied the wrong unit price. In other words, we

applied a pound price to a ton quantity. Now, if that pound price is correct or not, we did not take up.

Mr. Almert claims a different pound price from what Mr. Pillsbury claims, although not very much difference—practically nothing.

On Item 23 no discrepancy exists; and that is entirely a matter of unit price.

Mr. Almert had assumed nothing but expanded metal as reinforcing steel, while Mr. Pillsbury had part expanded metal and part ⅜ inch twisted bar. If the total is added they come within 17 cents of each other.

When we came to compare field sheets it was impossible or difficult to state exactly which steel members were included in a certain quantity figure; and it was decided to make a joint field inspection. To that effect Mr. Cooper, of my office, together with Mr. Williams, went into the field, and they found certain discrepancies, both on our part and on Mr. Almert's part. Mr. Cooper has reported to me in regard to the result of that field inspection, but Mr. Williams has not. So, I cannot come to any agreement, because I do not know what Mr. Williams has to say about it.

Witness has read Mr. Williams' report which is attached to the report. He thinks they are practically correct.

So that the result of that field view was a practical agreement, though not exactly. Item 16 of Ite- 24, page 9. Mr. Cooper did not express any opinion as to whether 5 per cent or 25 per cent was correct. That, in itself, I believe, accounts for practically the whole difference. It is a matter of engineering judgment, upon which Mr. Cooper did not express any opinion.

Mr. Williams' Item 25 appears to be correct. He submitted data that indicated there had been some departure from the specifications as to piling.

Item 27 refers to sheet piling. It appears that this item has been omitted from Mr. Pillsbury's report. There is an omission there but the witness is not in a position to admit the exact quantity.

Item 28 involves unit prices only.

Item 30 is a matter of unit prices.

Item 31. The only difference existed that one took a 12-inch wall and the other a 24-inch wall, but this has not been determined up to this time.

902 As to Item 32, what Mr. Williams says appears to be correct.

The same is true of 32½. He submitted a letter which indicates that Mr. Almert's position in respect to it was well taken. The letter is as follows:

"August 29, 1916.

"Mr. W. E. Belcher,
Washington, D. C.

"Dear Sir:

"In answer to your letter of the 9th instant, regarding the value of the steel work which we have furnished and erected for the

Potomac Electric Power Company, our Pottstown office advise as follows:

"The work which we furnished under the contract closed on November 30th, 1916, amounted to 1,767,049 pounds, which was made up as follows:

"Riveted work	964,025
"Hoppers	166,353
"Rails	11,200
"Beam work	625,471
"Total	1,767,049

"We trust that we have given you the information desired and hope that it will be of assistance to you.

"Very truly yours,

"LOUIS F. SHOEMAKER & COMPANY.

"(Signed) LOUIS D. RIGHTS,
"A. W. R.,
Contracting Manager."

Mr. Barbour: That indicates, then, that there actually went into that building about 160,000 pounds more of structural steel than Mr. Pillsbury had estimated for?

Mr. Kappeyne: Not necessarily so. Here is an item of rails, 11,000 pounds. I do not know if these rails are included under Mr. Pillsbury's structural steel or under track work or reinforcing steel, or included also with this sheet piling which has been omitted.

Mr. Williams was going to give me some more detail as to exactly what items these various matters of steel include.

There are hoppers here. We have included hoppers in substation and power plant equipment, instead of in the buildings.

So, that matter was left open for future discussion. I have no doubt that Shoemaker furnished that steel. That does not mean that this steel is not taken care of elsewhere in Mr. Pillsbury's report. Hoppers are taken——

Mr. Barbour (interposing): But hoppers are not structural steel, are they.

Mr. Kappeyne: They are included here in your total of 1,700,0-odd; part of that 1,700,000 pounds is for hoppers, which we have included, not in buildings, but in power plant and substation equipment; so there might not have been any difference at all. I do not know.

On Item No. 33 I have a little memorandum here that says: "Matter of unit costs."

Inasmuch as Mr. Pillsbury's quantity exceeds Mr. Almert's, the difference must have been in the unit price.

903 JAMES H. BOTZ.

James H. Botz, statistician of the Public Utilities Commission of the District of Columbia, being duly sworn, testified that he had examined the books and reports of the Potomac Electric Power Company to ascertain what additions had been made to its property since the first of July, 1914, and the cost of the same, and also what withdrawals, if any, had been made from such property, and the cost of such withdrawals; and thereupon produced two printed sheets, designated Potomac Electric Power Company, Additions to Capital Account, July 1, 1914, to June 30, 1916," which, he stated, was a true copy of the items and amounts taken by him from the books of the company, showing the additions to and deductions from the property of the company from July 1, 1914, to June 30, 1916, and also the amounts.

It was introduced in evidence as "Exhibit Botz No. 1" and is to be inserted herein.

904 Potomac Electric Power Company.

Additions to Capital Accounts.

July 1, 1914, to June 30, 1916.

	Account.	
Land devoted to Electrical Operations	300	$33.63
General Structures	305	76,462.95
General Equipment	306	8,224.63
Power Plant Buildings	308	21,450.33
Furnaces, Boilers & Accessories	309	4,145.45
Steam Prime Movers	310	1,597.26
Electric Generators	314	*.50
Accessory Electric Power Equipment	315	12,289.98
Miscellaneous Power Plant Equipment	316	507.83
Substation Buildings	317	—0—
Substation Equipment	318	90,820.30
Poles & Fixtures	319	20,585.57
Underground Conduits	320	99,802.34
Transmission System	321	42,183.75
Distribution System	322	63,293.28
Line Transformers & Devices	323	14,574.96
Electric Services	324	72,878.31
Electric Meters	325	51,740.86
Electric Meter Installation	326	—0—
Street & Park Lighting System	327	51,280.47
Commercial Arc Lamps	328	*967.20
Glower Lamps	329	—0—
Electric Tools & Implements	331	917.32
Forward		631,821.52

	Account.	
Brought Forward		$631,821.52
Electric Laboratory Equipment	332	828.82
Engineering & Superintendence	334	4,687.92
Injuries during Construction	336	1,849.78
Written off in respect to equipment sold or abandoned		*34,014.70
		$605,173.34

905 The amount shown opposite the account numbers are according to the Interstate Commerce Commission classification, and the Company's records are kept differently from the Interstate Commerce Commission classification. In other words, the same numbers do not designate the same accounts. It was necessary to summarize some of the accounts to make those headings according to the Interstate Commerce Commission's classification.

The company accounts are kept in accordance with the I. C. C. classification although they are, in accordance with the permission contained in this classification, subdivided; that is, they are carried into greater detail than the classification requires.

They represent merely changes in capital account since July 1, 1914, to July 1, 1916. The changes do not cover any replacement that may have been made during that period and charged to operation and maintenance.

Witness has no doubt that company has made such replacements, but did not have a list of them.

The items stated in red ink represent a withdrawal but it does not necessarily mean that the red figures are all withdrawals. They represent the net change in that account and means that the deduction in that case was bigger than the addition; and all the additions are net figures and do not indicate the actual additions to capital. They are net figures and what is left after taking off withdrawals from the additions. And the figure at the end "Written off in respect to equipment sold or abandoned, $34,014.70" is an account in the Company's books where the items which are written off in respect to equipment sold or abandoned are included; and this is the balance shown in that account as having occurred during this period of two years.

The total amount of net additions to capital account for these two years is $605,173.34, and do not take into account any proper capital charges which have been taken care of through operating expenses if there were any such charges so taken care of.

906 WILLIAM F. HAM, Vice President and Comptroller of the Washington Railway & Electric Company and its subsidiary companies, including the Potomac Electric Power Company, being sworn as a witness testified that he had been Comptroller of the Potomac Electric Power Company continuously since December, 1899.

*Red ink.

He was Treasurer of the Company from 1900 to 1911, and has been Vice President of the Company continuously since December 20, 1911.

He has been connected with public utilities since 1895, having been cashier, and subsequently Secretary, of the Nassau Electric Railroad Company of Brooklyn, New York, from 1895 to the early part of 1899; Auditor of the Brooklyn Rapid Transit Company from the early part of 1899 to December, 1899.

Before being with the Nassau Railroad, he was, for three or four years, in the employ of a manufacturer of steel rails and special work, now one of the companies included in the United States Steel Corporation.

Since 1897, he has been a member of the Committee on Standard Classification of Accounts of the American Electric Railway Association, and took an active part in the preparation of the classification of accounts adopted by said association, and later adopted by the National Association of Railroad Commissioners. As a member of that Committee he took an active part in the preparation of the present classification promulgated by the Interstate Commerce Commission for electric railways, and is in frequent consultation with the Interstate Commerce Commission with reference to the questions arising under such classification. The Division of Statistics and Accounts of the Interstate Commerce Commission has a working arrangement with the Committee, of which he is a member, that all questions arising under the classification of accounts for electric railways shall be considered jointly by representatives of the Commission and his association.

He is a past President of the American Electric Railway Accountants' Association.

In 1901, he was one of a committee of three appointed by the National Electric Light Association to prepare a classification of accounts for electric light and power companies, and is now the Chairman of the Committee representing the Accountants' Association before the National Association of Railroad Commissioners.

As Comptroller of the Potomac Electric Power Company he has charge of the books and accounts of the company; all vouchers for materials and labor are approved by him. He has knowledge of all contracts for construction materials, and approve all payments before being made, and, in fact, has an intimate acquaintance with all of the finances and accounts of the company since his appointment as Comptroller in December, 1899.

He has examined the accounts of the company prior to filling the office of Comptroller and is reasonably familiar with the transactions prior to his appointment as Comptroller.

He has made a study of the act creating the Public Utilities Commission of the District of Columbia, and his interpretation of the wording of the law, is that certain information should be placed before and considered by the Commission in making a valuation and that means that the Commission shall ascertain the historical cost of the property to date; in other words, they must go back into the records and books of the company and ascertain, as nearly as prac-

ticable, how much the enterprise has cost from its inception, that is, how much has been invested down to the date of inquiry. This naturally requires that the cost of all of the property from the very beginning of the enterprise down to the date of the inquiry, that was used in or useful to the building up of the property to what it is as of the date of the inquiry, and including not only the cost of all physical property but all other expenditures necessarily incurred, including development cost, cost of organization, promotion and financing, must be ascertained before the cost of investment in the property can be determined.

The other provisions, as he understands, is to give effect to the actual transactions of the utility, and thus renew, as it were, '907 the financial operations of the utilities involved from time to time, and give such faith and credence to past transactions as is required. Such ascertainments naturally were to be made in the light of past legislation and accounting practice based thereon. We, ther-for-, are required to inform ourselves as to the Act of Congress approved March 1, 1901, providing that all electric light and gas companies of the District of Columbia shall file with the Commissioners of the District of Columbia on or before the first day of August of each year a statement showing their receipts and expenditures for the fiscal year.

We must also inform ourselves as to the requirements of the Act of Congress approved March 2, 1907, providing, among other things, that any corporation engaged in the manufacture of sale of electricity, through its president or other duly authorized officer, shall make a sworn statement to Congress annually on or before the first day of February in each year, said report to contain a detailed statement of the condition of the business of said company for the year ended December 31st next preceding, and such statement to set forth, among other details, the amount of paid-up capital stock, the amount and character of the indebtedness of such company, the amount and cost of materials, the cost of the property, etc. * * *

We must also take into consideration the Act of Congress approved March 3rd, 1909, which required every corporation engaged in the manufacture or sale of electricity in the District of Columbia to open and keep a set of books in manner and form prescribed by the Interstate Commerce Commission.

We also should take into consideration the uniform system of accounts as prescribed by the Interstate Commerce Commission under the last mentioned act and effective January 1st, 1910.

Summarizing, then, we can state that the reports filed under said act approved March 1, 1901, informed the proper authority of the state of the business of the electric light company as to the transactions embodied within such reports.

Again, the said act approved March 2nd, 1908, accepted and validated, so to speak, the method of bookkeeping that was in force at the time of the passage thereof, and thus established a principle that the transactions of the lighting company as reflected on its books as at the time of the passage of said act, would be accepted as proper transactions and correctly recorded, and all the reports filed with Congress

under the requirements of said act, and in accordance with the present method of bookkeeping, must now be held to estop any criticism of the methods of that bookkeeping or propriety of the transactions reported to Congress and the method of stating them upon the books and records of the Company.

Again, the action taken by the Interstate Commerce Commission in the promulgation of a uniform system of accounts for electric corporations under the provisions of said act approved March 3rd, 1909, carried out the spirit and purpose of the Act of Congress approved March 2nd, 1907, by providing for the electric corporation to state the cost of a completed plant as of December 31st, 1909, and making no provision for rewriting of the books or any restatement of them, but by accepting the statement of the electric corporation of the cost of plant and equipment, or of a completed plant as of December 31st, 1909.

No provision was made in this system of uniform accounting for undoing the past, disregarding past transactions, or making any eliminations or other arbitrary requirements as to the past, but merely provided rules for the future guidance of the electric corporation. In my judgment, it is important that we have all of these in mind when we undertake to ascertain the amount of money expended in the construction and equipment of the property of the Potomac Electric Power Company, and I have no doubt that much of the misunderstanding on the part of the accounting witness for the Commission arises out of his failure to understand the legislation of the past and the effect thereof upon accounting practices.

908 The witness is familiar with electric railway accounts as prescribed by the Interstate Commerce Commission on page 101, pertaining to road and equipment accounts:

"Section 527. Cost of Road Purchased.—This account shall include the cash cost of any road or portion thereof purchased. Where the contract of purchase includes not only road but also equipment, securities, and other assets, the appraised value of such equipment, securities and other assets shall be deducted from the total cash cost, and the remainder of the cash cost shall be charged to this account. Where the consideration given for the property purchased is other than cash, such consideration shall be valued on a current cash basis. If the consideration includes the assumption of liabilities, such liabilities shall be included in the determination of the cost at their cash value at the time the contract is made. This account shall be used only as a clearing account in which temporarily to carry the cost of road purchased until such time as a plan for distributing such cost to the primary accounts appropriate for the property as approved by the Commission."

There are two notes under this instruction which should perhaps be read into the record.

"Note A. The appraised value of the equipment shall be charged to the appropriate equipment accounts. The value at the time of purchase of any securities or other assets acquired shall be included in the accounts appropriate for such assets. The par value of any liabilities assumed shall be included in the appropriate liability

accounts, and the necessary adjustments between the cash value charged to the property accounts and the par value shall be made in the appropriate premium or discount account."

"Note B. The carrier shall be prepared to furnish the Commission, upon demand, a full report of the contract of acquisition of each road or portion thereof purchased, and a statement showing in detail the consideration given therefor. It should procure, in connection with the acquisition any such road and equipment, all existing records, memoranda and accounts in the possession or control of the grantor relating to the construction and improvements of such road and equipment, and shall preserve such records, memoranda and accounts until authorized by law to destroy or otherwise dispose of them. Where the records, memoranda and accounts are so intimately involved with other records, memoranda and accounts of the grantor as to make their transfer impracticable or unadvisable, certified copies of them shall be procured and retained by the grantee. The verity of the copies shall be certified by the custodian of the originals."

"Section 36. Cost of Road Purchased.—"To this account should be charged amounts paid for road purchased. In this connection attention is specially directed to the note at the beginning of this classification. Where payment is made by an issue of the company's securities or other commercial paper, the cash value thereof at the time of such payment should be charged. When the purchased price paid included equipment in addition to the road, the equipment received should be appraised, and the appraised value thereof should be charged to the appropriate equipment accounts. The difference between same and the total amount paid in cash or the cash value of securities issued in payment being charged to this account. When contracts are entered into for the construction of a completed road for a fixed amount, whether payable in cash or in the company's securities, the amount paid in cash or the cash value of the securities issued in payment should be charged to this account. In case the contract amount includes equipment in addition to the road, the value of the equipment should be ascertained by an appraisement and treated as above provided."

The witness has made a study of the corporate history of the Potomac Electric Power Company and its predecessor com-
909 panies and stated that the Potomac Electric Power Company is the only existing utility in the District of Columbia manufacturing energy for sale, and is the sole successor to several prior existing light and power enterprises owned and operated in the District of Columbia and vicinity.

The first attempt at the introduction of electric lighting in the City of Washington took place in fall of 1881, in connection with the ceremonies attending the dedication of the Scott Statute at 16th street and Massachusetts Avenue, northwest.

This attempt was not a success, but as an immediate consequence of it the Heisler Eectric Light Company was formed by Messrs. Stilson Hutchins, D. B. Ainger, Wm. Dixon, Moses Kelly and Geo.

A. Kelly. It does not appear that this concern was ever incorporated in the District of Columbia, although it may have been incorporated elsewhere.

A small experimental station was established in the Washington Post Building, then located at 10th and D streets, northwest, * * * but this plant was in operation only a short while when all of the property rights and franchises of said company were purchased by the United States Electric Lighting Company, hereinafter referred to, for $100,000, payment being made in the capital stock of the said United States Electric Lighting Company, the bill of sale being dated December 9, 1882.

Mr. Bowen: Mr. Syme, if it is agreeable to you and the Commission, we might expedite the proof of some of these things if you would be content at this time to accept a copy of the bill of sale for the record?

Mr. Syme: Yes, sir. I will not demand strict proof of any of these things. I will look at them and if I want to know anything further about their authenticity I will indicate it to you.

The United States Electric Lighting Company of Washington, D. C., was incorporated under the laws of the State of West Virginia under date of October 17, 1882 * * * Its capital stock was $100,000, with the privilege of increasing same to $500,000. It was subsequently increased to $700,000 and under date of April 20, 1891, a further increase was authorized of the capital stock of the company to $2,000,000.

The total amount of stock actually issued was $1,097,600. This company began business on an extensive scale and during the year 1884 laid an underground conduit on Pennsylvania Avenue and other streets, being one of the pioneers of underground construction, in which its system was regarded as a model. Under date of December 9, 1882, the United States Electric Lighting Company of Washington, D. C., entered into a contract with the United States Electric Lighting Company of New York, whereby the New York Company agreed to furnish to the Washington Company and its licensees, the exclusive right to use and sell for use in the District of Columbia certain patented improvements under letters patent of the United States owned by the New York Company relating to dynamos, electric machines, voltaic arc and incandescent lamps, regulators, meters and other apparatus, devices and appliances and all others which the New York Company should acquire the right to dispose of. In consideration of said right the Washington Company delivered to the New York Company $100,000 of its capital stock and agreed to deliver to said New York Company 25 per cent of all additional stock issued.

The Brush-Swan Electric Company was incorporated under the laws of the District of Columbia on July 5, 1884, by other individuals to carry on in the District of Columbia the business of manufacturing electricity, and manufacturing, owning, selling, operating and licensing the use of various apparatus used and to be used in producing light, heat and power by electricity or to be used in electro plating in the District of Columbia and for the purpose of

owning, using and leasing water power and rights. Its term of existence was twenty years, and its capital stock was $500,000, divided into 5,000 shares at $100 each.

This company for a time threatened to be a formidable rival of the United States Electric Lighting Company. Experiments were made by them of a system of tower lighting for street illumination and large and powerful focus lights were placed upon the tops of the Washington Monument, Treasury Building, Smithsonian Institute, the dome of the Capitol and other prominent buildings.

910 On July 16, 1885, the plant of the United States Electric Lighting Company was put out of operation by fire, which forced the company to conclude negotiations with the Brush-Swan Electric Company for the use of its plant, which ultimately resulted in the company purchasing the equipment of the Brush Company

Under date of August 12, 1885, the United States Company contracted with the Thompson-Houston Company and was granted the exclusive right to use the Thompson-Houston system of arc lighting in the District of Columbia, the duration of such right to be governed by the amount of electrical apparatus purchased.

It was agreed at or about the same time that the United States Electric Lighting Company should pay to C. M. McNutt the sum of $2,500 for his rights and interest in the Thompson-Houston system and apparatus in the District of Columbia and rights thereunder.

Under date of March 12, 1887, a contract was entered into between the Edison Electric Lighting Company and the United States Electric Lighting Company under which the United States Company was granted the right to the sole and exclusive use of Edison electric patents, with all subsequent patents which the Edison Company should acquire, within the District of Columbia. As consideration for said rights, the United States Company delivered to the Edison Company $20,000 of the capital stock of the United States Company, and agreed to deliver to the Edison Company 30 per cent of all increased capital stock which should be devoted to the extension of incandescent plant. The Edison Company was also entitled to 30 per cent of *an* preferential charge created in any way in priority to the capital stock of the United States Company.

Under date of October 6, 1893, a contract was made between the General Electric Company and the United States Company which cancelled the previous contract and provided for adjustment of claims for damages on account of the alleged infringements by the Edison Company, also for sale to the United States Company, exclusively, of Edison direct current patented apparatus for central station lighting, and also permitted the United States Company to hold and use certain patented apparatus, machines, articles, methods and devices previously supplied by the Edison Company. In consideration thereof, the United States Company agreed that whenever its stock or bonded debt was increased, 10% of same would be delivered to the General Electric Company.

On October 12, 1897, Eustace Oxley, of Washington, D. C., assigned to the United States Electric Lighting Company all right,

title and interest *in and* in and to three patents issued to him covering method of and apparatus for multiple rate metering and any improvements which should be made in the future to and in the District of Columbia for the sum of $1,200.

Under date of November 9, 1900, Frederick T. McIntyre of Washington, D. C., assigned to said Company and the Potomac Electric Power Company all right, title and interest in and to a patent issued to him covering improvements in the multiple rate metering system for the sum of $500.

By act of Congress, July 18, 1888, The Commissioners were given power to authorize the wires of any existing telegraph, telephone or electric light company then operating in the District of Columbia to be laid under any street, alley, highway, etc., whenever, in their judgment the public interest required it; and by Act of Congress approved March 2, 1889, (25 Stats. 804) the Commissioners were given power to authorize the overhead wires of any telegraph, telephone or electric light company to be laid under any street, alley, highway, sidewalk, etc., in the District of Columbia. It directed the Commissioners to ascertain and report to the first session of the 51st Congress what deduction could be made in electric lighting for annual and five year contracts, that they invite proposals for supplying such light at reduced rates, and in this they were not limited to any one system. The same provision was reenacted in the Act approved March 3, 1893, (27 Stats. 544), and the ten year period was added, the report to be made to the 53rd Congress.

On April 18, 1891, the Potomac Electric Company was incorporated under the laws of the District of Columbia, the purpose of which was to produce electricity for motive power and lighting purposes to persons, firms or corporations in the District of Columbia, also to the District of Columbia and the United States Government, with authority to install and erect the necessary poles, con-
911 duits, wires and appliances to successfully and lawfully perform its objects. The term of its existence was limited to 20 years, and its capital stock was placed at $25,000, with the right to increase it to $500,000.

A permit was issued to the said company by the Commissioners of the District of Columbia, under date of April 20, 1891, giving it authority to erect poles and string wires thereon from Chain Bridge to Georgetown, and also in certain streets in and near Georgetown.

The power station for this plant was erected at the Virginia end of the Chain Bridge, at which point it was then hoped that a large water power development would take place. In this the original parties to the enterprise were disappointed. They maintained, however, a steam service from the beginning of their operation until the early part of the year 1896, when that plant was shut down and service transferred to the power station of the Georgetown and Tennallytown Railway Company, a new and improved dynamo having been obtained for that purpose.

During the year 1892, or the early part of 1893, the Western Electric Company obtained a judgment against the Potomac Electric Company in the amount of $2,833.19, covering cost of machinery

and electric lighting plant furnished. All of the property of the Potomac Company was covered by a mortgage deed of trust and the execution on the above judgment was returned "nulla bona." An equity suit was thereupon instituted by the Western Electric Company against the Potomac Electric Company, its directors and the trustees under its deed of trust, praying for the appointment of a receiver and the sale of the property of the electric light company (Equity cause #14587). The Western Electric Company was successful in the said suit, a receiver was appointed on July 18, 1893, and the property of the company was sold under decree of the equity court on August 25, 1894. Amherst C. Wilder, the owner of the stock and bonds of the Potomac Electric Company was the purchaser at the said sale and the property and franchises of said company were conveyed to him as of October 11, 1894.

The purchase of said property and franchises was approved by S. T. Thomas, attorney for the District of Columbia, who submitted an opinion under date of August 24, 1894, to the effect that a purchaser under the decree authorizing the sale of the franchises, privileges and assets of the Potomac Electric Company would take all that company possessed, including not only tangible property, but the privileges and franchises necessary to the enjoyment and use of its plant. The opinion was addressed to the Commissioners, and a copy thereof was furnished to the company.

The Potomac Light & Power Company was then incorporated under the laws of the District of Columbia on November 3, 1894, by Amherst C. Wilder and Victor M. Watkins, of St. Paul, Minnesota, and others of the District of Columbia, for the purpose of carrying on the manufacturing, mechanical and mercantile business of producing and manufacturing electricity for light, heat and power, of running engines, dynamos and other like mechanical devices for the production of electricity for such purposes and furnishing and selling the light, heat and power so produced for public, domestic and mechanical purposes, etc. The term of its existence was to be twenty years, and its capital stock was placed at $35,000. This company controlled and operated the properties of Amherst C. Wilder, which comprised the power plant and about 10 acres of land at the Virginia end of the Chain Bridge, and poles, wires and other equipment in the District of Columbia. This company was not in existence very long, until November 6, 1895, when the executors under the will of Amherst C. Wilder conveyed all the franchises, real estate and personal property, owned by the said Wilder and operated by the Potomac Light & Power Company, to Oscar T. Crosby and Charles A. Lieb, who thereafter secured by purchase, lease or otherwise certain other property situated in Georgetown, among which was the old Dent Foundry at 33rd and Water streets, northwest, which afterwards became the Potomac Plant. In October and November, 1895, additiona- permits were obtained to
912 erect poles and string wires in Georgetown and Tennallytown, one of which was to connect the lines of the company with the Georgetown & Tennallytown Railway Company station on Wisconsin Avenue.

About this time negotiations were opened with the Rock Creek Railway Company, the Eckington Railway Company (Eckington & Soldiers' Home Railway Company), and the Brightwood Railway Company for supplying said companies with electric current, it having been established to their satisfaction that their own plants were inadequate and expensive. Current was already furnished for the operation of the Georgetown & Tennallytown Railway Company, Washington & Great Falls Electric Railway Company, Washington, Arlington & Falls Church Railway Company, Glen Echo Railway Company and the Tennallytown & Rockville Railway Company, the installation of which was made under permits issued by the Commissioners of the District of Columbia. Connections to houses in the rural districts were also made from this service. These lines, connections, the plants running same and the new power station at 33rd and K streets, northwest, it was stated, represented an investment of about $380,000, of which amount $150,000 represented machinery in the plant. The lines of the Rock Creek Railway, the Eckington Railway and the Brightwood Railway were not reached by any of the wires then connected with the general system of wires, nor were they near same. The other companies, however, were either connected or could be connected by a few feet of wire and additional poles. Positive contract was made with the Eckington Railway Company as soon as the wires in and about Georgetown could be connected with the wires in Eckington. Meanwhile, permits for extension of the electric lines across Cleveland Park had been applied for and received in December, 1895.

At that time there was in operation in the suburb of Eckington an electric light venture conducted by Col. George Truesdell, who was in possession of a permit from the Commissioners of the District of Columbia, dated December 27, 1889, to erect poles and string wires thereon in certain streets in Eckington. This plant was located in the power station of the Eckington Railway Company and supplied light to a number of streets and houses in said suburb. This business was also purchased by Messrs. Crosby and Lieb in 1895.

Having gotten permits to reach the Rock Creek Road and having under discussion with the Engineer Department of the District of Columbia the best route along which a pole line could be built to reach Eckington, contracts were made with the William Cramp & Son Ship & Engine Company, of Philadelphia, under date of December 15, 1895, for a splendid steam outfit, and with the General Electric Company, under date of December 28, 1895, for an absolutely modern electrical outfit, which constituted a station, with a new dynamo, then in operation, of about 2,500 horsepower capacity.

Among the individual permits obtained from the Commissioners of the District of Columbia, one dated November 26, 1895, permitted the connection of existing lines in Georgetown with a certain stable on M street, northwest. Another covered the construction underground across M street at the head of the Aqueduct Bridge of a short conduit of 50 feet which would connect existing wires with those already placed, after an undertaking with the Commissioners

of the District of Columbia, on the Acqueduct Bridge, for the purpose of lighting same.

While making the two connections aforesaid, they were enjoined from prosecuting the work by two proceedings instituted by the United States Electric Lighting Company and certain citizen tax payers, who alleged the misappropriation of funds by reason of the electric lighting of the Acqueduct Bridge as ordered by the Commissioners. Under date of December 10, 1895, a permit was issued by the Commissioners authorizing a route finally decided upon by the Engineering Department of the District of Columbia, along which wires might be placed for connecting Eckington with Cleveland Park.

Under date of January 11, 1896, while this line was being constructed, another injunction was served, restraining the completion of the work, said injunction being obtained in the name of property holders, one of them being the President of the United States
913 Electric Lighting Company. The attorney for the United States Electric Lighting Company prosecuted all these suits. The three suits were merged and a decision rendered February 4, 1896, as a result of which work for a time was suspended. About this time there was another equity suit instituted by the United States Electric Lighting Company against the Commissioners of the District of Columbia and the Power Company, (Equity Cause No. 17584) in which it sought to restrain the issue of any permits by the Commissioners authorizing the Power Company to lay conduits and Wires in streets on either side of Rock Creek and to prevent the Commissioners from entering into contracts with said company for furnishing electric light upon any streets or avenues or in any parks or reservations. In this case the United States Electric Lighting Company claimed that it had the exclusive legal right to maintain underground conduits and wires in any portion of the City of Washington east of Rock Creek, and that whatever apparent authority had been conferred upon the Power Company by permit from the Commissioners was given in derogation of such exclusive right and in direct violation of law. This contention was overruled by Justice Cole and injunction refused by his order dated November 30, 1896.

Under date of January 20, 1896, upon application of Oscar T. Crosby, D. S. Mackall, D. M. Anderson, B. F. Mackall and L. E. Sinclair, the Corporation Court of Alexandria, Virginia, incorporated The Potomac Light & Power Company, the objects and purposes of which being the production, distribution, sale and purchase of electric current and electrical appliances for all purposes.

The capital stock of this company was not to be less than $100,000, with the right and power to increase it to not more than $500,000. Messrs. Crosby and Lieb transferred all of the electrical franchises and property controlled by them to the said company in February, 1896, and received as the purchase price therefor 2,987 shares of the capital stock of the said company. The total capital stock issued was 3,000 shares.

Under date of April 28, 1896, (Acts of Incorporation, Volume 7, page 268) The Potomac Electric Power Company was incorporated

under the laws of the District of Columbia by Oscar T. Crosby, Frederick C. Stevens and Charles A. Lieb to manufacture, buy, sell and distribute electricity and electric appliances for any and all purposes. The term of its existence was to be twenty years, and the amount of its capital stock was placed at $500,000.

In June, 1896, the Potomac Electric Power Company purchased all of the assets of the Potomac Light & Power Company for the sum of $255,000, which said assets included all the property, rights and franchises of the corporations formed under the laws of the District of Columbia and the State of Virginia.

Under date of June 29, 1898, the capital stock of the Potomac Electric Power Company was increased from $500,000 to $1,000,000, of which $250,000 was 6 per cent voting non-cumulative preferred stock and $750,000 was common stock, all of the par value of $100 per share.

Under date of August 29, 1902, the charter of the Potomac Electric Power Company was amended and its capital stock was increased from $1,000,000 to $5,000,000.

The Potomac Electric Power Company negotiated for and purchased all of the property, rights, franchises and good will of the said United States Electric Lighting Company of Washington, D. C., under date of September 27, 1902, for $3,250,000, payable in the stock of the company, and the assumption of all the obligations of the United States Electric Lighting Company.

914 Under date of January 31, 1912, the capital stock of the Potomac Electric Power Company was increased from $5,000,000 to $10,000,000, and its purpose, scope and capacity greatly extended. * * * The total amount of the capital stock of the company now issued and outstanding is $6,000,000, all of which was paid in and owned by the Washington Railway & Electric Company.

By act approved March 2, 1895, Congress authorized the execution of a contract with any existing electric lighting company in the City of Washington for furnishing electric current for the Capitol Building was authorized and authority was given to authorize said electric lighting company to lay an underground conduit through the Capitol grounds for said purpose.

By act approved June 11, 1896 (29 Stats. 401), the Commissioners were authorized to permit any existing electric lighting company to maintain for a period of eight months any existing poles or overhead wires west of Rock Creek and in places outside of the existing fire limits, and that such system could be extended west of Rock Creek for such period of eight months, at the end of which time all right or authority should cease; and also to authorize any such existing electric lighting company to construct and use conduits for the reception of existing overhead wires within the territory formerly known as Georgetown and to extend the same for an aggregate of not more than 1¼ miles of conduit in the same territory; also, that the United States Electric Lighting Company could extend its underground conduits and wires east of Rock Creek and within said fire limits to Mount Pleasant, Washington Heights, and Columbia

Heights under such regulations as the Commissioners should prescribe.

By Act of Congress, approved March 3, 1897, (29 Stats. 673) it was provided that until Congress provided for a conduit system it should be unlawful to lay conduits or to erect overhead wires in any highway except as therein specifically authorized, but the Commissioners were authorized to issue permits for house connections with existing conduits and overhead wires, and for public lighting connections with existing conduits, provided, however, that nothing therein contained should affect any pending litigation affecting the legality of the construction of any conduits made since June 18, 1896; nor prevent the United States Electric Lighting Company from extending conduits into Mount Pleasant, Washington and Columbia Heights; nor to affect existing overhead wires of the Potomac Electric Power Company west of Rock Creek outside the fire limits which were authorized to be maintained for a period of one year from the passage of the act.

By act of April 23, 1897, (30 Stats. 42) the provisions of this act were extended for one year from that date.

In August, 1897, the United States Electric Lighting Company applied to the Commissioners of the District of Columbia to construct an underground conduit along the east side of 9th street from K street to the boundary (Florida avenue), along the boundary from 9th to 13th street and thence north on 13th street to Roanoke street. The Potomac Electric Power Company opposed the granting of said permit but the same was granted and the work started. The United States Company also applied for a permit to construct conduits from its station at 14th and B streets along 14th street from B street to New York avenue and also on 14th street from S street to Florida avenue. The Potomac Electric Power Company further opposed these permits by a bill in equity (Equity No. 18,883) and a preliminary restraining order was issued by the court.

On January 12, 1898, the court decided that sufficient conduits for supplying Mount Pleasant, Washington Heights and Columbia Heights had already been constructed; that the conduits in dispute were unnecessary and that the Commissioners lacked the authority to issue the permits and enjoined the same.

By act of July 7, 1898, all existing conduits within the fire limits and all existing overhead electric light wires without the fire limits were legalized until ot-er*h*wise provided by law and house connections authorized.

By Act of July 8, 1898 (30 Stats. 753) the Commissioners
915 of the District of Columbia were authorized to issue permits to existing electric light companies in the District of Columbia for the extension of existing overhead electric wires outside the fire limits and west of Rock Creek.

In August, 1898, the Commissioners issued to the United States Company permits for certain conduits on B and 15th streets and to enlarge certain manholes, and the work was commenced when the Potomac Electric Power Company instituted a suit in equity to restrain the same. In Equity No. 19,676.

On January 7, 1899, the court held that the Commissioners in granting said permits exceeded their authority so far as the reconstruction and enlargement of the ducts were concerned, and that the Commissioners had power only to grant permits for necessary repairs to existing conduits.

On March 3, 1899, (30 Stats. 1053) Congress authorized the Commissioners to grant permits for the repair, enlargement and extension of existing electric light conduits, provided that in every conduit constructed under its provisions, three ducts were to be reserved for the use of the United States and District of Columbia, and that electric light companies should furnish to the public and to private consumers standard are lights of not less than 1000 candle power at a rate not exceeding $72 per year; and after June 1, 1899, the maximum price of current should be reduced from 15 cents to not exceeding 10 cents per kilowatt hour, and that if consumers other than the Government should not pay within 10 days, 11 cents per kilowatt hour might be collected, and Congress reserved the right to further limit the prices therein mentioned.

This act was reenacted June 6, 1900.

An act of Congress approved April 5, 1902 (32 Stats. 738) permitted the laying of wires in existing conduits for the purpose of supplying additional light to Convention Hall for Masonic Fair of 1902.

The act approved July 1, 1902 (32 Stats. 602) authorized the Commissioners of the District of Columbia to permit the erection of poles and the stringing of overhead wires thereon outside of the fire limits and east of Rock Creek for electric lighting purposes only.

By act of April 26, 1904 (33 Stats. 306) the Commissioners were empowered to from time to time promulgate certain rules and regulations respecting the production, use and control of electricity.

By act approved April 27, 1904 (33 Stats. 375) the Commissioners were authorized to permit the Potomac Electric Power Company to make connections between its conduits and those of the Washington Railway and Electric Company and all other companies controlled by it for the purpose of furnishing electric current through the said conduits for public and private use*ds*, the use of said railway conduits to be upon such terms as may be agreed upon between said companies.

On August 13, 1904, the charter of the Potomac Electric Power Company was again amended and the terms of its existence made perpetual.

By act approved March 3, 1909 (35 Stats. 703), the execution of contracts for lighting the streets for periods not exceeding three years was authorized, and every corporation engaged in the manufacture of gas, electricity was required to keep a set of books in the manner and form prescribed by the Interstate Commerce Commission.

By act of March 2, 1911 (36 Stats. 982) rates were prescribed to be paid by the District for various kinds of street lamps, the company furnishing all equipment, which provisions were reenacted in act approved June 26, 1912 (37 Stats. 181).

The present outstanding capital stock of the company consists of

2,500 shares of preferred stock of the par value of $100 each, amounting to $250,000, and 57,500 shares of common stock of the par value of $100 each, amounting to $5,750,000, making a total of $6,000,000 all held by the Washington Railway & Electric Company under the provisions of the act of Congress approved June 5, 1900,
916 and is pledged with the United States Mortgage & Trust Company, Trustee, under the provisions of one certain mortgage or deed of trust of the Washington Railway & Electric Company to the said United States Mortgage & Trust Company bearing date March 1, 1902.

By reason of this ownership the stockholders of the Washington Railway & Electric Company are entitled to receive all profits of the Potomac Electric Power Company.

The present outstanding bonds of the Potomac Electric Power Company are $1,700,000 first mortgage bonds secured under the provisions of its certain mortgage or deed of trust to the Commercial Trust Company of New Jersey, bearing date the first day of June, 1904, and $5,300,000 of its consolidated mortgage bonds secured under the provisions of one certain deed of trust to the Commercial Trust Company, dated June 30, 1906.

Copies of these mortgages were introduced in evidence.

Under the provisions of the act approved June 5, 1900, the Washington Railway & Electric Company is guarantor for the $7,000,000 for the consolidated mortgage bonds.

By act of Congress approved March 1, 1901, all electric light companies are required to file with the Commissioners on or before the first of each year statements of their receipts and expenditures for the previous fiscal year.

By act approved July 1, 1902, (32 Stats. 619) they were required to make affidavits to the Board of Tax Appraisers annually as to the amount of gross earnings for the preceding year and to pay 4 per cent tax on such gross earnings. And by act of March 2, 1907, to make sworn statements to Congress annually on or before the first day of February of each year of the condition of the business of *of* said company and set forth the annual cost and the present value of the property of such company; the amount of paid-up capital stock, the amount and character of the indebtedness of such company; the amount and cost of materials used in making electricity, the quantity of electricity manufactured, the quantity of electricity sold, the amount received per annum for each public arc light, the amount received per kilowatt for each public incandescent light, the average price received per annum for each arc light furnished to others than the public, the varying discounts allowed to consumers using arc lights during a part of or the entire night, the average price charged per kilowatt for incandescent lights furnished to others than the public, with the varying discounts, and the price charged per kilowatt hour for power or heat furnished, and the gross revenues from each source, the revenues from other sources, the extensions and improvements made in the plant and works, the actual cost of the same, the amount expended for labor, the amount set aside for depreciation, the amount set aside for insurance and renewals, the amount paid

out of earnings for betterments, the amount paid for betterments from other sources, the amount set aside and paid in interest and dividends, the surplus after paying the operating expenses and fixed charges, the statement of the operating expenses to be itemized and classified, the names of the stockholders and the amount of stock held in such company as near as its present method of bookkeeping will permit.

That he had read and studied the Sangster report and believed that the method he pursued is wrong because he has excluded in his final findings all costs other than costs of physical property.

2nd—that he has eliminated from his final findings the cost of all physical property which may have been superseded in the development of the business.

3rd—that even limiting his studies to the ascertainment of the cost of existing physical property, the method which he has pursued has not enabled him and could not enable him to do it.

That on page 5 of his report he states that, the primary purpose of this report being to determine the actual cost of the physical property now owned by the Company, it is necessary to distinguish between expenditures on plant and equipment and payments for property of an intangible nature, or for organization and financing of this company.

The witness, basing his opinion upon general information, and particularly upon his knowledge of the accounts of the Potomac Electric Power Company, is of the opinion that the method pursued by Mr. Sangster of ascertaining the cost of existing property by process of elimination is impracticable and necessarily leads to mistaken results. That the first essential is to have an inventory of existing property, and then from an examination of all of the costs of the company, whether recorded in property account or in operating expense accounts, determine, as nearly as might be, the cost of said existing property as shown on the inventory.

917 This would require a minute examination of all vouchers for labor and material and records of installations and renewals.

Because of the fact that the books of the company, like those of other utilities, were not originally kept with a view to the ascertainment of such information, it would be impossible now to ascertain exactly the original cost of existing property, even if one started out with an inventory of the existing property as the basis for such ascertainment.

It is, perhaps, true that in large units of property, such as buildings, it would be possible to ascertain with reasonable accuracy the original cost of existing property, for the reason that such items as those named can be sufficiently identified through the accounts. * * * But in such items as conduit, cables, poles, wires, lamps, services, devices, tools and implements, where the installations, though large in number and cost, are made up of units which cannot be afterward identified, it is impossible to ascertain the original cost of existing property constituted in such items.

All such items of construction have been repaired, renewed and

improved from time to time in piecemeal fashion, and it would have been, and still is, impracticable to keep records of sufficient minutiæ to determine the cost of existing property.

That his opinions in this matter are supported by an address delivered by Judge Prouty, Director of the Bureau of Valuation of the Interstate Commerce Commission, delivered before the National Association of Railroad Commissioners on November 18, 1914, which is a public document and was introduced in evidence in the cross examination of Dr. Bemis.

None of the present classification of accounts for electric railways contemplate that there shall be any accounts or group of accounts in which the cost of existing property is to be stated.

The books of this company since January 1, 1910, have been kept in accordance with the I. C. C. classification, and prior to that date they were kept in a way which was in accord with good accounting system, but neither the present system of accounts nor any of those which preceded were constructed with the idea of making it possible to ascertain at any time the cost of existing physical property. * * * If accounting practices had been developed with a view to the ascertainment of this fact, it could perhaps be done, although it would require a great deal of detailed analysis and would, in his judgment, be entirely out of proportion to any good that could be accomplished.

It is not because the costs are not recorded in the books of the company, but because they are not recorded in such a way as to make it now possible to ascertain what is the cost of existing property and to identify in the books of the company the purchases or costs of construction of existing property. He wishes to be clearly understood that all costs of construction and equipment are recorded on the books of the company, but the difficulty in ascertaining the cost of existing property is because he cannot now analyze costs as recorded.

The method adopted by Mr. Sangster is absolutely impracticable. The only practical way was to first have an inventory and then make an estimate from the company's books of its original costs. That method, he believes, would have led absolutely to a result more nearly correct and more reliable than the results reached by Mr. Sangster, and would have led to a result showing a greater cost than that reached by Mr. Sangster, because of the fact that all through the history of the company there has been a reconstruction of the property going on through its maintenance accounts. Constantly the property has been bettered, and no records of those betterments made in property account.

Practically the entire transmission and distribution system of the company has been improved in that manner. Thinks it would also apply to items of machinery but to a lesser extent than to the smaller stuff, for the reason that it is easier to keep track in accounts of the large items, which are easily capable of identification.

The underground conduit system has been rebuilt and improved out of maintenance funds to a very considerable extent.

918 The nature of the improvements is the replacement of certain conduits of less expensive construction by other conduits

of more expensive construction and often of greater capacity. Frequently there have been changes in grade ordered by the District of Columbia, simply charged to expense account the cost of the new conduit. It was, of course, of a better type, and frequently of a greater carrying capacity; but that expense would not be recorded in capital account at all. I cannot state this in percentage.

He thinks that more than a mile of conduit has been changed in grade by order of the Commissioners, but he would not like to be tied down to a number of miles but can furnish some exhibits bearing on that subject.

919 Transmission and Distribution—Ham.

While the item of conduits is important, still a conduit is more of a fixity, a fixed thing, than the other items in our distribution and transmission system, and while there has been this change in conduits to some extent, the change in other items of property has been very much greater.

The wooden poles are principally used for overhead distribution system outside of the city. They use better grade of wooden poles now than originally—larger in diameter and greater in height. Such improvements do not appear in the plant account.

After carefully reviewing these facts, he hesitated to measure, in a fixed sum of money, just what those elements amount to, because he knows that the exact amount cannot be stated but that the improvement has taken place is undoubtedly true. If, after he has introduced the evidence he shall introduce, the Commission desires him to make an estimate upon it, he will do so.

The purpose of his statement is to show that the Commission through its accounting is building on a false basis. It is building on a statement which is not a true statement for the reason that it is not, first, the existing property which Mr. Sangster has found the cost of.

He thinks it is impossible to ascertain the original cost of physical property if you want to express it with exactitude. The statute merely requires it to be ascertained as nearly as practicable. He does not think, however, that the Commission would desire to fall into the error of pursuing a method which is manifestly erroneous.

He thinks that before he has finished testifying that perhaps the Commission will feel that the method pursued by Mr. Sangster is one which could not possibly lead to the ascertainment of the original cost of the existing physical property. He does not think it can lead to a result that is approximately correct, and that a much more reasonable way to ascertain it is to build up from the way the company itself has kept the accounts, which some of us know something about.

Mr. Sangster started out with the accounts as shown by the company's books. He first eliminated everything that could not be positively stated as having to do with the physical property. He then eliminated from the balance of that which he considered the physical property all the property that he could find that he assumed had gone

out of existence, but made a very feeble effort to attempt to add anything to property which he could readily have found from an examination of the books of the company. He did two things; he eliminated from our property account those items which he felt had gone out of existence, but made a very feeble effort to add anything to our property account for additions which had been made to the property, and not shown in the plant account.

Chairman Kutz: Well, we hope the company will be able to show the additions which have been made.

Dr. Bemis testified as to two methods of ascertaining the cost of existing physical property. One was to have an inventory as a foundation, and with that, to go back into the costs as recorded in the company's accounts, and to make a statement or, possibly, an estimate of what the existing physical property did cost.

That eliminates from your problem the possibility of error as to what the physical property now existent is. But in the plan which Mr. Sangster followed he not only has the possibility of error in what the physical property now consists of, but the additional possibility of error that he cannot state the costs of what he supposes is the physical property directly.

This is so applicable that I was going to say that the actual original cost of existing physical property can only be ascertained in a manner almost identical with that used in determining the cost of reconstruction. The inventory describing all existing property is identical for both purposes, but, in my opinion, Mr. Sangster's findings are a composite figure, based to a small degree upon the estimated cost of existing property ascertained from alleged inventories, but in great part representing not the original cost of existing property, but the original cost of property which has gone out of existence and been replaced by other property, the cost of which is not recorded in property accounts. That only applies to replacements done through maintenance and operation account, rather than through the capital account. In other words, it is a mixture of the estimated cost
920 of existing physical property originally installed. It is, therefore, not a statement of what the present property cost.

If, from the beginning, every item of property as added or as deducted had been recorded in plant account, it is true that the plant account would have shown it * * * but that has not been done, and it is not done in any system of accounting with which the witness is familiar, and certainly is not contemplated in the system of accounts under which we are operating here.

You can take that in the case of an electric railway, for instance. We write into the property account a car—the cost of a car. We write out of the property account the original cost of the car that has gone out of existence. But we handle the thing entirely differently with a rail. If we replace a 70-pound rail with a 70-pound rail of similar type, no record is made in plant account. I probably am increasing the cost, because the original one was put in at a much lower cost than the present rail was put in. * * *

Suppose we were replacing a 70-pound rail with an 80-pound rail,

and then, for illustration, suppose that the price of rails has increased $5.00 a ton; now, the classification provides that the betterment to the extent of the increased weight of the rail shall be charged to plant account. Therefore, I having made the substitution of a 70-pound rail with an 80-pound rail, what then is the fact is that I have in my plant account the 70-pound rail at its original cost, and even of 10 pounds of rail to the yard at a higher cost of $5.00 a ton. So, I have a composite figure, then, in my property account, representing neither the cost of the existing property nor of the property originally installed.

You are permitted to capitalize the increased weight of the rail at the price you paid for it. You are not permitted to capitalize the increase of $10 a ton for the 70 pounds over the price that you paid for the original 70-pound rail.

That, however, is inconsistent with the method of the Interstate Commerce Commission in permitting you, where a large reconstruction takes place, for instance, the total replacement of a mile of track, where you are permitted to charge off the original cost of the entire track and charge into property account the value or cost of your new track. So that you see that right in that classification there is this inconsistency. When you get down to the real facts of it, it is not contemplated that the plant and equipment account shall represent the cost of existing physical property.

You cannot represent cost and value at the same time. And in this accounting, as far as it has progressed, that line of demarcation is not even yet fairly established. There is an attempt in all accounting to combine cost and value in stating your balance sheet.

As an instance of the methods of accounting followed, take a recent job, No. 4597, rebuilding conduit and necessary cable work in connection with same, on M street between 26th and 28th streets, northwest, and on 28th street between M street and Pennsylvania avenue, due to resurfacing work by the District. The entire cost of this job is charged to maintenance.

This is in accordance with the I. C. C. rules.

This is one of the things which might be interpreted either way. It would be, perhaps proper to capitalize the betterment, or charge it entirely up to operating expenses and still be consistent with the classification.

It might be fairer to charge the betterment, that part of the cost which is a betterment, to capital and the rest to maintenance, but that is not the point. Even if we did that, the cost that we would have in our plant account would not be the cost of existing property.

He read the testimony of Mr. Sangster which appears on page 3312 and following pages, to the effect substantially that when replacements of cable were made the new cable was charged to plant account, and that this was true with the exception of minor items.

Witness thinks this statement is entirely incorrect that the replacements which have been made through operating expenses and not in any way recorded in the property plant accounts are minor in amount involved.

921 The witness has gone to a great deal of pains to analyze the maintenance accounts of cable and wire for one year, 1914, taking this year as a representative year, and finds that during this year cable and wire to the extent of 163,965 feet was installed in place of 123,937 feet removed, all charged to the maintenance account, and in no way recorded in plant account This same condition has obtained form year to year.

The increased quantity was not credited to the property account.

This is the maintenance of a certain line or service where, in making new construction, there was more cable used than had been used in the former installation, varying in different matters as to the reasons for it; but the point involved is not necessarily this difference, but the fact that even if the quantity were the same that the cable that is in the plant account is not that the cost of which is recorded in the plant account.

It would be less if prices had gone down, and it would be more if prices had come up.

You would find similar things going on if you had taken an analysis of other years.

The total maintenance accounts involved in this study for 1914 were underground transmission system maintenance, series incandescent cable maintenance, overhead distribution system maintenance, direct current cable maintenance, series arc current cable maintenance, alternating current cable maintenance, electric services overhead maintenance and electric services underground maintenance. The total of those accounts, measured in dollars and cents, was $41,348. I find the average cost per year for similar expenditures for the 10 years ended December 31, 1914, were $44,296.35, showing that the volume of transactions involved in these maintenance accounts are about the same in 1914 as the average for the 10 years ended on that date.

The detail of this comparison was offered to the Commission.

Chairman Kutz: If the Commission wishes more detailed information it will make its wishes known.

The summary was introduced in evidence as Ham Exhibit No. 21.

Mr. Ham: The transactions included in this summary are those for repairs, renewals, changes, piecing and splicing of underground and overhead feeders, mains and renewing and installing third wires and enlargements of service cables and wires. During the year 1914, there were charged directly to operating expense maintenance accounts 163,965 feet of cable and wire. There were credited to said accounts 123,937 feet. All of the cable and wire referred to in the foregoing comments, together with the cost of labor, hauling, splicing, supplies and other expenses, have been charged directly into the operating expense accounts. The changes from one cable or wire to another, and the expense connected therewith, are not reflected in the amounts for cost of plant and equipment. Cables and wires of different capacities and different costs

and of improved character have been installed in place of old cable and wire replaced and removed.

Customers' house services, both of underground cable and overhead wires, have been enlarged, and two-wire customers' house services have been changed to three-wire services. Underground cable customers' service have been installed in place of overhead services.

This summary includes numerous transactions of the kind mentioned in this paragraph, the whole cost of which has been charged to operating expenses.

As to the different accounts referred to, account 31, underground transmission system maintenance, includes the transactions for repairs, renewals, etc., for cables of this class of service.

Account 56, series incandescent cable maintenance, this account includes cable and wire involved, with repairs, renewals and
922 sundry changes of the underground cable lines for this class of service. The account shows an excess of 1,023 feet of cable installed.

Chairman Kutz: I don't think it is necessary to read them, Mr. Ham. I notice for the year 1914 that you expressed this difference in feet, and as for the ten years prior to 1914, you expressed it in dollars.

Mr. Barbour: It is expressed in dollars for 1914, too.

Mr. Syme: What were you calculating on that $41,348 in the year 1914?

Mr. Ham: There are actual costs of maintenance as shown in the account specified in Account No. 31, Account 56, Account 57, Account 59, Account 60, Account 61, Account 64 and Account 65. It is not expressed in feet alone. I give there below, the total cost of both kinds for the year 1914, which amounts to $41,348. I do not know how I can shorten the record, but you can see the volume of work that was necessary in order to reduce that matter of dollars into feet for that one year, so that I think it is a perfectly fair assumption that the year 1914 is typical of the years for the period of ten years ending on that date.

$41,348 includes the cost of the cable and also the labor and other items involved in those accounts.

The cable that is pulled out would be credited to maintenance accounts at its then value, either good or scrap, as the case might be.

This does not all represent the increased investment. I do not maintain for a moment that it represents increased investment. That is not the point I am attempting to develop here, but in this one year what is recorded in our property account is, if we limit our study to just this one year, the cost of 123,937 feet; but the existing property at the end of that year is not the cable that was installed at the beginning of the year but the cable that was installed during the year in place of that.

While it happens to be thirty-three per cent more, that is not the real point which I wish to show here. Some of those increased quantities may be covered in a like statement that I will introduce

of what I consider betterments and improvements. None of these transactions went through the plant account at all.

This $41,348 represents the cost of renewals, replacements and repairs of cable and wire during the year.

In his judgment the whole of this $41,348 was not properly chargeable to maintenance.

I will come a little later to a discussion of items that we have analyzed in our operating expense account and which I consider as properly chargeable to construction account, but at this time I am not presenting it from that viewpoint.

Asked to express the distinction he makes between cost and value, the witness replied—"I should say that 'cost' is fairly definite. To record cost is to record a fact. Value, I should say, could not be ascertained in any such way. Value is dependent upon the exercise of judgment.

There has been a constant tendency toward improvement through renewals, which has a decided effect upon the original cost of the property. Less substantial types of construction have been replaced by more substantial and more expensive types of construction.

Mr. Sangster in his report has not in his final figure shown the existing cost of physical property, and in this respect he has handled the matter differently from what he stated he had done in the Washington Railway & Electric Company case.

923 Intersectional Adjustments—Ham.

My understanding is that Mr. Sangster felt that it was necessary for him to make certain intersectional adjustments for the purpose of reconciling the accounts of the company with the classification which, for convenience, he had himself adopted.

We were furnished the intersectional adjustments, or the information as to the intersectional adjustments affecting two accounts. One of these, that for street and park lighting, I have examined with considerable care. * * * I find that many of the items that have been transferred into or out of the account, street and park lighting, have been improperly transferred.

Taking up the first item in this list of intersectional adjustments as affecting street and park lighting, it shows items transferred during 1911 and 1912 from overhead transmission system to street and park lighting, items amounting to $1,672.14. The first item included in the foregoing transfer is one oil switch installed in Tennallytown Car Barn, $186.60. This switch was charged by the company to account No. 119, overhead distribution system. The cost of this work was included in job 2372, which read as follows:

"Installing one K. 5 oil switch operating panel for 6,600 volt circuit at Tannallytown carbarn."

This oil switch was not installed for street lighting purposes, but was installed for the purpose of enabling the company to disconnect a 6,600 volt line to Rockville in event of trouble on said line. The 6,600 volt line referred to was not constructed for street lighting purposes, but, on the contrary, was used for furnishing 6,600 volt

current to Rockville substation, and at intermediate points between said substation and Tennallytown carbarn. It was proper for the company to charge this oil switch in the accounts as a part of the overhead line installation to which it was devoted, and its transfer by Mr. Sangster to account "Street and Park Lighting" is unquestionably in error.

There was also transferred to this section by Mr. Sangster, and included in the foregoing amount, one auto transformer and switchboard installed in Tennallytown carbarn, $735.75, and miscellaneous charges $59.96, a total of $795.71. Included in the foregoing amount is the cost of the following job:

"Job, 2,751, installing 1 K-12 switch and panel at Tennallytown carbarn, $239.09."

There was charged to account No. 119, Overhead Transmission System, a portion of the cost of the foregoing job amounting to $236.59. This switch was also installed to control the 6,600 volt line running to Rockville, in order to disconnect said line in event of trouble. Inasmuch as this line was not devoted to street lighting purposes, it could not be reasonably concluded that the switch used on the line was for street lighting purposes. The switch referred to was properly charged by the company as a part of the *overhead* line with which it was connected.

Other instances are discussed in great detail by Mr. Ham, see transcript pages 4377 to 4392; after which Dr. Ham continued:

He stated that it was necessary to make these adjustments in order to reconcile the books of the company with certain classifications that he had adopted for convenience, and as a result of these classifications he was to be enabled to state the cost of existing property of certain classifications.

Had he followed the books in the instances mentioned, he would have more nearly or correctly stated the accounts which have been affected by these intersectional adjustments.

From the analysis that I have made of this particular intersectional adjustment, I am convinced that he has not accomplished what he set out to accomplish.

924 He attempted through these intersectional adjustments to restate the capital account of this company. My answer was with the understanding that "restatement" and "reconstruction" of accounts meant the same thing. These intersectional adjustments were deterimental in some ways to the interest of the company.

He has transferred to the account for Street and Park Lighting some copper wire amounting to $1,974.34, and afterwards eliminated that item from our property account on the theory that it had to do with street and park lighting, when, as a matter of fact, it was an item installed for the overhead lines and commercial services.

I could not say that had it not been transferred; it would not under his theory have been stricken out. I cannot say just what he would have done under his theory. I know he has eliminated it out of his street and park lighting when it should not have been eliminated through that account. Whether he was going to go further and eliminate it from some other account I don't know. I don't know

what he would have done. His intersectional adjustments do affect the total. I cannot state positively, but in comparing the totals of these different accounts which purport to represent the cost of existing physical property, and comparing those with the inventories or alleged inventories, and charging out the difference, if there has been a mistake made in his intersectional adjustment it would modify the amount which he has eliminated.

Dr. Bemis based certain of his comparisons and eliminations on the integrity of this intersectional adjustment.

That an injustice can be done is very clearly developed by looking at his method of determining the cost of lamps as shown on page 211. If that intersectional adjustment is wrong, the amount of the eliminations is wrong. That is not the only instance—there is another on page 199. It also develops in the statements shown on page 207.

Mr. Syme: On this page 199 here I see an error that would make a difference of about $499.

Mr. Ham: Not necessarily. It may be that the amount of $499.99 might have been entirely different. In fact, the accuracy of the intersectional adjustment affects the statement of cost as stated throughout the entire report. I cannot testify as to the effect of an intersectional adjustment of which I have no knowledge. We have not been informed as to the details of all the intersectional adjustments.

Without having access to the details of all of these intersectional adjustments, I cannot answer questions based upon facts of which I have no knowledge.

If Mr. Sangster had been conducting his investigation by first having an inventory, he would have avoided such an error as that made manifest in Mr. Sangster's report in the matter of street and park lighting. The total of existing property as shown in this classification, which Mr. Sangster stated was in accordance with the provisions of the Interstate Commerce Commission, located within the District of Columbia, amounts to $69,129.47. Mr. Pillsbury, after making an inventory of this property, shows the reproduction cost of the same to be $292,584.40.

It is apparent that by Mr. Sangster's method he did not ascertain the cost of the existing physical property as determined by Mr. Pillsbury's inventory. * * *

I think it is a safe assumption that, if Mr. Sangster had had an inventory of existing property, he would not have fallen into the error he did in stating this account.

I do not think he was justified in substituting his judgment for that of the officers of the company. They had shown their judgment on the books.

925 Office Furniture and Fixtures—Ham.

In the matter of office furniture and fixtures, Mr. Sangster reports as the cost of existing property $12,298.74. Mr. Pillsbury made an

inventory of this property and stated its reproductive cost as $26,885.25.

I think it may be assumed that, if Mr. Sangster, or any other accountant, had had an inventory, he would have found that, arriving at his cost as he did, he had omitted any purchased of office furniture and fixtures, and further study would have developed that these had been included by the company in operating expenses.

I would not say improperly included. In the matter of office furniture and fixtures, which is ordinary accounting, you may charge the cost of all office furniture and fixtures to property account, if they are clearly additional, but as a practical proposition it has been found that office furniture is a very difficult thing to keep track of, and the more conservative policy, and the policy that was followed by this company for ten years, was to charge all of its office furniture and fixtures, whether additional or in replacement, to operating account.

When we erected a new office building and it became necessary to buy a large amount of furniture, we changed and put the equipment for the new office building in property account.

Mr. Sangster's report purports to be the result of an analysis of the property account, but during a period of ten years we made no charge to property account for additional purchases of furniture and fixtures.

I think, even in other lines of business, it is frequent that a similar policy is followed, because office furniture and fixtures are apt to go out of use without any record being kept of their going out of use.

926 Transformers and Devices—Ham.

Again, in the item of line transformers and devices, Mr. Sangster stated the following figures as the cost of existing property, and Mr. Pillsbury made an inventory of similar items and stated their reproductive cost as follows:

Mr. Sangster, lightning arresters, $120.80; Mr. Pillsbury, lightning arresters, $1,789.49;

Mr. Sangster, time switches, $729.00; no similar item on Mr. Pillsbury's report;

Oil disconnecting switches, Mr. Sangster, $199.74; Mr. Pillsbury, oil disconnecting switches, $3,767.82.

Mr. Sangster, miscellaneous material, $13.76; Mr. Pillsbury, miscellaneous material, cut-outs, fuses circuit breakers, and so forth, $2,923.01, manhole junction boxes, $5,835.82, regulators, $406.47, transformer fuse blocks, $2,639.29; the total of these items according to Mr. Sangster being $1,063.30; according to Mr. Pillsbury, $17,361.90.

I think it is safe to assume that, if Mr. Sangster or any equally competent accountant had had an inventory of the existing property of this character, he would have been able to state with some degree

of accuracy the original cost of the property, instead of arriving at a statement manifestly not in accordance with the facts.

927 Balance Sheet—Ham.

The witness has prepared a balance sheet of the company as of June 30, 1916.

That has been taken from the books of the company and arranged in accordance with the classification of accounts prescribed by the Interstate Commerce Commisssion.

This was introduced in evidence as Ham Exhibit #22 and consists of two sheets, numbered 22 and 23, and is styled "Balance Sheet, Potomac Electric Power Company, June 30, 1916," the first sheet headed "Assets," and the second sheet headed "Liabilities."

The first item of assets is I. C. C. Accounts No. 1, fixed capital, plant and equipment, December 31, 1909, devoted to operations; plant and equipment amounting to $9,355,619.28.

This is shown on the books of the company as plant and equipment, December 31, 1909, and in accordance with instructions of the I. C. C. includes the cost of plant and equipment and other property devoted to electric operations at the figures at which such property was carried on the books of the corporation on December 31, 1909, less such deductions as have been made since that date in accordance with the I. C. C. Classifications.

It includes certain items of physical property that are not now existent, and that were not in existence on December 31, 1909.

The fixed capital does include items in one of Dr. Bemis' tables which amounted to one and one-quarter millions of dollars which he said should be amortized out of past earnings, being the same items referred to in Dr. Bemis' testimony on page 6, totaling, $1,274,178.

There is nothing in the classification of accounts of the I. C. C. that provides for writing out of capital or amortizing the items embraced in these figures of Dr. Bemis.

This item of $9,355,619.28 should be included in the cost of construction and equipment.

The next item on the balance sheet is Account No. 2, expenditures for plant and equipment since December 31, 1909, $2,778,727.73, carried on the books of the company as plant and equipment since December 31, 1909, and further subdivided on the books into Accounts E-300 to E-344, as prescribed by the I. C. C.; some of said accounts being further subdivided on the books of the company in order to obtain greater detailed information.

The second item includes property non-existent as testified previously; that replacements of property have been made and not entered in plant account; but in other respects it represents property now existent.

The item—that is, $2,778,727.73—should be included in the cost of equipment.

The next item on the balance sheet is Account No. 4, property abandoned, $7,046.46, carried on the books of the company as property abandoned, and represents the amount in suspense on account

of the abandonment of certain power station apparatus, which amount now in suspense is subsequently to be charged to operating expenses.

The item of property abandoned should be included in the statement of cost of construction and equipment until finally amortized through charges to operating expenses.

All three of the items to which I have testified should be considered as part of the cost of construction and equipment on June 30, 1916.

The next item is "Investments," which consist of 540 shares Electric Testing Laboratories stock, $2,700; first mortgage 5 per cent bonds of Washington & Rockville Railway Company, $20,000; two-thirds interest in Great Falls Water Power Site, $1,000,000; Graceland Cemetery property, $116,155.80, and $3.52 shares of F. H. Geyer Company stock, $352; and securities in sinking fund covering Washington Railway & Electric Company bonds in sinking fund, cost, $377,920.69, making total of investments of $1,517,122.49.

* * *

We should include in cost of construction and equipment the cost of 540 shares of Electric Testing Laboratories stock, $2,700,
928 for the reason that it is through the ownership of this stock that we are permitted to avail ourselves of the equipment and services of the electrical testing laboratories and are rend-ed service much more economically than if we were ourselves compelled to establish a laboratory of our own. All lamps are tested by this Electric Testing Laboratory, which is sort of a joint stock company in which all large electric lighting companies are members, and they maintain this general laboratory for the benefit of all large electric light companies. They make a nominal charge for the service. They only test lamps for members who are only permitted to have a prorata share according to their requirements.

Each share-holder pays the same unit price is my understanding, but will not be absolutely positive. Dividends of 10 per cent are received.

If the company did not have these facilities, it would entail having a laboratory of their own which would require an investment of a considerable sum of money.

929 Great Falls Power Site—Ham.

The item of two-thirds interest in the Great Falls Power Site should also be included in the cost of construction and equipment. This item is carried in investment account, and not in plant and equipment, because it represents the cost of property acquired not for use in present operations, but in anticipation of future operations.

Plans have been made for the development of this water power, and it is planned to proceed with its development, if the company's finances will permit, whenever it is reasonably established that as an economic proposition power can be developed by water at this site in competition with power generated by steam.

It cannot, of course, be definitely stated when this time will arrive, but in view of the rapidly increasing cost of coal, it is reasonable to expect that the water power will be developed and the company is

certainly justified in protecting itself for the future by holding this property in anticipation of future operations.

It is carried on the books of the company at $1,000,000 because that is the amount issued for its purchase in May, 1912, by virtue of a contract placed in evidence before the Public Utilities Commission in the hearing held in November, 1913.

The Potomac Electric Power Company does not hold the legal title yet, the prerequisite steps for getting title in the Potomac Electric Power Company are now in the hands of our legal department for that purpose.

The Washington Railway & Electric Company acquired 3,334 shares of the capital stock of the Great Falls Power Company, being two-thirds of the entire capital stock of that company, on November 17, 1902, at a cost of $425,000 in cash.

It was originally planned that this purchase was for the account and benefit of the Potomac Electric Power Company, but at the time of purchase in 1902 the financial structure of the Potomac Company was not such as to make it possible for said company to make the purchase. Consequently, the purchase was made by the Washington Railway & Electric Company, and when later it became practicable for it to be taken over by the Potomac Company, it was taken over in the way I have stated.

I do not know what the Great Falls Power Site is worth or what it was worth in 1902. I am only introducing its cost in stock, and also making this statement of original cost by the railway, plus accrued interest, for the information of the Commission.

930 Graceland Cemetery—Ham.

The next item to be included in the plant and equipment account is the Graceland Cemetery property amounting to $116,155.80.

This item should be included in cost of construction and equipment. This is carried in investment account, instead of plant and equipment account, for the reason that the property was acquired, not for use in present operations, but in anticipation of future operations.

It is planned to use thos property, known as the Graceland Cemetery property, as a shop, car house, store house and storage yards for the joint use of the Potomac Electric Power Company and the Washington Railway & Electric Company, of which the Potomac Company is a part.

This property is extremely well located for such a purpose, having the right to haul freight over the lines of the Washington Railway & Electric Company east of 15th and H streets, northeast, said line having railroad connections with the Pennsylvania Railroad and the B. & O.

Large pieces of property within the city limits are very difficult to secure, and the company must at times make provision for its future needs considerably in advance, in order that when the need arises the property will not have to be acquired at excessive prices.

This company is also confronted with the possibility of the Govern-

ment condemning the land located at 14th and B streets, used by it for power station, shops, offices, storage house and storage yards, garage and stable. A plan of condemnation by the Government has been frequently advanced and in my opinion it will be eventually carried through.

It is carried on the balance sheet as of the price paid for it. We have not added interest to any of our capital accounts since 1903. So, the treatment of this is no different from the treatment of any other capital account.

931 Other Items on Balance Sheet—Ham.

This balance sheet also shows Account No. 7 Re-Acquired Securities carried in "Securities in Sinking Fund"; Account No. 8, Materials and Supplies; Account No. 9, Cash; Account No. 10, Bills Receivable; Account No. 11, Accounts Receivable; Account No. 12, Interest and Dividends Receivable; Account No. 14, Coupon Special Deposits; Account No. 16, Other Special Deposits; Account No. 17, Advances; Account No. 18, Insurance Premiums paid in the advance.

These items that I have just mentioned do not, in my opinion, constitu-e proper items to be included in cost of construction and equipment, but many of them should be considered in the matter of working capital. I would like to take that matter up later.

932 Unamortized Debt, Discount, and Expense—Ham.

Account No. 22, Unamortized Debt Discount and Expense, covering unamortized debt discount and expense on bonds, said amount now being amortized during the term of the bonds. This item should be included in cost of construction and equipment until amortized out of earnings during the term of the bonds. It is being amortized at about $9,000 a year. So far as electric lighting companies are concerned, it became obligatory on this company when the classification of accounts of the I. C. C. became effective, namely, January 1, 1910, but I should say that probably for some three or four years prior to that it had become accepted as proper accounting practice to amortize discount and expense on debt.

My recollection is that Dr. Bemis was not quite sure whether it should be included in construction and equipment or not.

I am trying to testify as to facts; I am not sure about the Doctor. Prior to the period that I mentioned, which, I should say, was about 1906 or 1907, it was recognized as proper accounting practice to include discount on bonds in capital account. That was provided by the various classifications of the I. C. C. and of several State Railroad Commissions, but, as I see it, the difference is that when charged to capital account and allowed to remain there, it stands as a permanent charge against the rate payer or against the public; whereas, if amortized, it means that the entire expense shall be borne by the rate payer or the public during the life of the bonds, and in that way it does not stand as a permanent charge against the public.

That in either event the rate payers ought to pay and ought not to come out of the profits of the company. It is an expense which must be met just as any other expense of operation, and until amortized out of earnings it must remain in capital account.

In other words, there is no difference so far as the company is concerned whether you amortize it or let it stay in the capital account forever. It is simply a question of when the rate-payer is to pay the bill—whether it is to be paid during the life of the bond, or indefinitely. It should not be paid by the stockholders. Whatever is a part of the investment is what your rate of return must be figured on, whether the stockholders come into that calculation one way or the other.

Outside of expenses such as printing bonds and services of that kind, the actual discount and commission sustained by the company from its beginning is $494,413.56. Of that amount $166,073.56 is now included in cost of property. $45,000 has been charged direct to profit and loss, and $283,340 was charged to unamortized debt, discount and expense. Of this latter amount, $87,556.14 has been amortized through income up to June 30, 1916, leaving $195,783.86 yet to be written off—it includes only the Potomac Electric Power Company. There is a reduction of about $9,000 every year in the unamortized discount, debt and expense account.

Account No. 24—"Other Suspense," $9,426.72, consists of two items: (*a*) Job Work, consisting of work in progress and items pending distribution, $9,420.29, and (*b*) Materials and Supplies, manufacturing, $66.43.

The firs- item, Job Work, or work in progress, should be included in cost of construction and equipment.

Summarized, the items which should be included in cost of construction and equipment shown on the balance sheet of June 30, 1916, are as follows:

Account No. 1, Fixed Capital, Plants and Equipment, December 31, 1909, $9,355,619.28; Account No. 2, Expenditures for Plant and Equipment since December 31, 1909, $2,778,727.73; Account No. 4, Property abandoned, $7,046.46; Account No. 6, Investments: 540 shares, Electric Testing Laboratories stock, $2,700; two-thirds interest in Great Falls Water Power Site, $1,000,000; Graceland Cemetery property, $116,155.80; Account No. 22; Unamortized Debt, Discount and Expense, $201,174.42; Account No. 24, Other Suspenses, Job Work, work in progress, $9,420.29, or a total of $13,470,843.98.

933 Turning to second sheet, No. 23, liabilities; briefly, I will state that they consist of the following items:

Account No. 26, Capital Stock, subdivided on the books of the company as Preferred Capital Stock and Common Capital Stock;

Account No. 27, Funded Debt, shown on the books of the company as (*a*) first mortgage 5 per cent bonds and (*b*) consolidated mortgage 5 per cent bonds;

Account No. 29, Consumers' Deposits representing amounts of Interest-bearing deposits made by consumers as a guarantee for the payment of their bills;

Account No. 30, Loans and Bills Payable, consisting of bills payable drawn to provide funds for cost of building extensions and additions;

Account No. 31, Audited Vouchers and Wages Unpaid, shown on the books of the company as "Audited Vouchers;"

Account No. 32, Other Working Liabilities, consisting of (*a*) matured interest on funded debt and (*b*) unpaid coupons, United States Electric Lighting Company bonds. Both of these two mentioned items are offset by a corresponding debit item in coupon special deposits; and under the heading of "C," ten items constituting other working liabilities;

Account No. 33, Taxes accrued;

Account No. 34, Interest accrued;

Account No. 37, Accrued Amortization of Capital. It covers the items mentioned in the text of Account 37, Accrued Amortization of Capital.

Reverting to the balance sheet, Account No. 38, Appropriated Surplus, Reserves;

Account No. 39, Free Surplus, Profit and Loss, Balance;

That closes the items on the balance sheet. The total of the assets is $45,380,089.60,* and the total of the liabilities amounts to the same figure.

934 Outstanding Capital Stock—Ham.

The United States Mortgage & Trust Company of New York, Trustee, under the Consolidated Mortgage of the Washington Railway & Electric Company has the actual custody of the outstanding capital stock of the Potomac Electric Power Company owned by the Washington Railway & Electric Company. The *The* stock has never been on the market generally for buying and selling. It may have been prior to *to* 1899. I could not testify as to that.

The mortgage referred to has heretofore been introduced in evidence.

The stock is all owned by the Washington Railway & Electric Company and through dividends declared by the Potomac Electric Power Company the stockholders of the Washington Railway & Electric Company get the earnings of the Potomac Electric Power Company.

The bondholders of the Consolidated Mortgage of the Washington Railway & Electric Company are interested in the stock of the Potomac Electric Power Company because the stock is all pledged under the mortgage securing those bonds.

The amount of the capital stock of the Washington Railway & Electric Company is $15,000,000 and is held by approximately two thousand separate share holders.

The outstanding bonds issued under the terms of the Consolidated Mortgage of the Washington Railway & Electric Company amount to $11,642,350. I do not know exactly how many holders there are, but the bonds are widely held.

*These figures doubtful in copy.—Printer.

The witness introduced a sheet showing capital stock issued by the Potomac Electric Power Company, and endorsed as "Ham Exhibit No. 23."

In the first column, is shown, the date on which the stock was issued; second column, the amount; third column, to whom issued. The next two columns show issued for cash and the amount of proceeds, and the balance of the statement shows issued for other considerations, the amount and explanation, and at the foot of the statement appears a summary of the transactions appearing above. That is the original issue of all the stock. The amount which was issued for cash is shown in the summary there, $817,950. The balance, $5,182,050, was issued for other considerations, as stated.

I have also four sheets showing the issues of bonds from time to time. These sheets are numbered 1, 2, 3 and 4, and are referred to by us as Sheets 1, 2, 3 and 4, and were prepared from the books of the company, under my direction, and was introduced in evidence as "Ham Exhibit No. 24." These sheets cover the different bond issues of the company, which consist, first, of the First Mortgage 5 per cent 50-year gold bonds dated August 1, 1897; second, the First Mortgage 5 per cent 50-year gold bonds dated June 1, 1898; third, the First Mortgage 4½ per cent 25-year gold bonds dated November 1, 1902; fourth, the First Mortgage 5 per cent 25-year gold bonds dated June 1, 1904, and fifth, the Consolidated Mortgage 5 per cent 30-year gold bonds dated June 30, 1906.

The first Mortgage 5 per cent bonds dated August 1, 1897, to the amount of $500,000, were issued only to the extent of $397,000. None of the bonds were sold, they being used only as collateral for various obligations of the company. The remainder of the $500,000 bonds, namely, $103,000, were not issued except as treasury bonds. All of these bonds were canceled on June 30, 1898.

The explanation on the margin of Sheet No. 1 shows the way that these bonds were used as collateral for various obligations of the company.

I think the purpose of canceling the bonds and refunding them was because the amount of the issue was manifestly insufficient for the purposes of the company as then determined. As a matter of fact, that has been the history of the company throughout; and one of the significant things about this statement as you come to it shows that, notwithstanding the company has made all together five efforts to finance itself adequately, each effort has proved inadequate, including the last effort. In fact, it means and shows that the attempts at financing did not look sufficiently far into the future.

The First Mortgage 5 per cent bonds dated June 1, 1898, to the amount of $750,000, were issued to the extent of $650,000 partly to retire the obligations for which the bonds dated August 1, 1897, were pledged as collateral. $100,000 of these bonds were not issued, except in the form of treasury bonds.

935 All of these bonds were canceled on December 8, 1902; the $650,000 then outstanding being retired.

This statement also shows the proceeds from the sale of bonds

and the discount on the bonds and, in the margin, the purpose for which the bonds were issued.

The next issue of bonds were First Mortgage 4½ per cent bonds, dated November 1, 1902. Of these bonds $280,000 were sold for cash or, rather, were issued in payment of certain notes, at a discount of $56,323.56. $500,000 were used as collateral for a loan of $312,691.89, payable to the United States Mortgage & Trust Company.

This issue of bonds was canceled on June 22, 1904, at which time First Mortgage 4 per cent bonds dated June 1, 1904, were issued, and out of the proceeds of the issue the $280,000 bonds dated November 1, 1902, were paid off.

The next issue were First Mortgage 5 per cent bonds dated June 1, 1904. Of this authorized issue of $4,000,000, $1,700,000 were sold at a discount of $102,000, and the remainder, $2,300,000, were not issued. All of these remaining $2,300,000 bonds were canceled by resolution of the stockholders dated April 2, 1906, so that the amount of these bonds now outstanding is $1,700,000. The next issue is the Consolidated Mortgage 5 per cent 30-year gold bonds dated June 30, 1906. Sheets 2, 3 and 4 show the various issues of these bonds, to whom issued, the amount, proceeds and discount; showing that $5,300,000 of these bonds have been issued and are now outstanding.

The proceeds of the same is $5,086,790, and the discount $213,210.

I call special attention to the note which states that, in addition to the discount as above shown, a commission of one per cent of the par value of certain of those bonds was paid to the United States Mortgage & Trust Company; said commission amounting to $13,000.

The commission was on the sales under date of June 30, 1906, November 30, 1906, December 31, 1906, and April 30, 1907. These bonds were widely held.

An analysis of the sales of these bonds was offered in evidence as Ham Exhibit No. 25" and referred to as Sheet No. 72, and shows and aggregate of commission and discount of $494,413.56, or a percentage of 7.1 per cent, on all the bonds issued.

The company has almost entirely had to go outside of Washington to secure the necessary funds for its development. It was not possible for them to get their funds in Washington. They had to go outside. All of the bonds sold by this company and all of the financing done by this company, with the exception of that done through the medium of the Washington Railway & Electric Company, was outside of Washington for the twelve years from 1896 to 1908, after which date local institutions joined with outside interests in placing securities. I know that the Metropolitan Railroad Company at the time that it built its underground system was unable to secure funds in Washington for that work, but was able to secure them in Baltimore.

The City & Suburban, at the time of reconstructing and extending its lines, went to Baltimore to get the necessary funds.

As to the Washington Railway & Electric Company, upon its organization in 1902, I know, as a matter of fact, that it was compelled to go outside of Washington. I do not believe that it was possible for the Washington Railway & Electric Company to borrow any amount—any considerable amount in Washington, as Washington, in my judgment, is not a city of sufficient wealth, nor are its banking institutions of sufficient size, to handle the necessary flotations of bonds for actual capital expenditures of such a company as this. We could not reasonably look to Washington to furnish the necessary funds.

The cost of financing these bonds is shown on the statement; the cost of financing was higher in the earlier years than at a later period. These bonds were sold at a net discount of 6 per cent June 1, 1904. The cost of financing the bonds issued under the Consolidated Mortgage of the company dated June 30, 1906, was about 4.3 per cent. I think it was partly due, in the earlier days, to a lack of confidence in the securities of the company. The credit of the company has only been established through hard work and honest effort.

Witness stated he had prepared a statement showing the classification of these two items, 1 and 2, aggregating, $12,134,347.01, as they appeared on the books of the company June 30, 1916, and have also shown on the same statement the classification of the amounts of the expenditures for construction and equipment as they were recorded on the books of the company at the close of each year back to September 30, 1896, which statement was introduced as "Ham Exhibit No. 26" consisting of Sheets numbered 40, 41, 42, 43, 44 and 45.

936 Sheet No. 40 shows in the first column the construction accounts as they appeared on the books of the company as of September 30, 1896, being the date on which this company purchased the property of the Potomac Light & Power Company.

The second column shows these accounts as they appeared on the books of the company December 31, 1896.

The third column shows these accounts as they appeared on the books of the company December 31, 1897.

The next column shows these accounts as they appeared on December 31, 1898; and the last column shows how they appeared before closing December 31, 1899. On that date certain of the construction accounts, aggregating $1,116,527.33, were closed into one account known as "Cost of Plant."

That is shown in the first column on Sheet 42.

Mr. Syme: You have the original plant and franchise as of September 30, 1896, as $255,000, and the same as of December 31, 1896. On December 31, 1897, this account shows the sum of $207,960.59. What accounts for that difference?

Mr. Ham: Certain accounts have been credited to original plant and franchise, and charged to other property accounts.

On the statement previously introduced, Sheet No. 40, in the column headed "Before closing December 31, 1899," appears the letter "A" opposite certain items, which refers to the note appear-

ing on Sheet 41, which shows the distribution of certain expenses of organization, installation, promotion and financing, aggregating $773,710.07, which were distributed over certain property accounts as then recorded on the books of the company, and the purpose of this Sheet No. 4 is to show how they were distributed on the books of the company.

Now, you see that one of the items that was charged to original plant and franchise is shown on Sheet 41, down quite near the end of the sheet, $292,865.81; that being a portion of the amounts listed at the top of Sheet 41.

937 Extraordinary Expenses—Ham.

Extraordinary Expenses.—$550,000 was incurred some time during the year 1898, because it appears in the column headed December 31, 1898, as an item under the title of "Extraordinary Expenses and no part of the $550,000 enters into the increase from $225,000 to $499,000, though it is so recorded on the books of the company, but I do not think it does in fact have anything to do with it. I do not maintain that the original plant and franchises increased from December 31, 1898, from $207,944.59 to $499,368.90, except because of this entry to which I have referred.

This transfer may have been justified, but I do not see the occasion for it, and I have, in my analysis in this case, handled this matter precisely as Mr. Sangster handled it. I have disregarded this entry which made in 1898 in closing certain expenses of organization, financing, and so forth, into property accounts.

It should be continued on the books of the company in just the way it was originally entered.

There was nothing about the entry as originally made which was not proper or legitimate. It was originally entered under the title of "Extraordinary Expense." It was a proper expense at the time it was incurred. I do not know anything more about it than what I find in the records; but I interpret, I read into the transaction (and I think I am correct in inferring it) that it is not only the services that were specifically mentioned in the record, but a promoter's profit.

He thinks it does include that promoter's profit. It is similar to the item which Mr. Almert allows as compensation to conceivers, but different to this extent; that no one can go over these records without seeing that the promoter in this case was a builder as well. Mr. Almert's program as outlined seemed to make a difference between the promoter or the conceiver and the man who carried the thing on to completion. In this case the profit is not only for the conception of the project, but for carrying it out to a successful conclusion. * * * I do not want to have my testimony taken as meaning that I think it is entirely a promoter's profit, because I think these services that were rendered must have had value for financing and for securing these contracts. I think that anyone in looking up this thing intelligently must consider that it is not only for these services, but as compensation to the promoter.

I am quite positive that at the time the contract was made with the Eckington Company Mr. Crosby and Mr. Lieb were not in control of that company. I think it was done under the former management of W. Kesley Schoef. I do not think that Crosby and Lieb were at all interested in the Eckington Company until the general consolidation of the properties around 1899. In fact the City and Suburban was one of the latest companies to come into the general reorganization system.

The City & Suburban was the same as the Eckington Company.

The Eckington & Soldiers Home Railway Company was a separate company, which later became a part of the City & Suburban; but this Eckington plant that comes into this case was a separate enterprise, as I understand it, of Col. Truesdell, an individual enterprise, entirely separate from the Eckington & Soldiers Home Company. The only connection it had with the railway was that the power state of the railway company housed the apparatus of the separate electric plant.

This item is included in the item of $682,786.53, referred to in the testimony of Dr. Bemis, page 2496, under the title of "Organization and Financial Expense of Potomac Electric Power Company 1894-8."

He allows it as a proper charge to construction, and an item which he says should be deducted from assets, or includes it under the general title "Deductions from Assets" that should be accompanied with corresponding deductions from gross income.

The witness agrees with Dr. Bemis as to the legitimacy of the charge.

938 The difference b-tween Dr. Bemis and myself in the handling of this matter is that he claims it should be amortized out of past earnings, and I maintain that it should still be continued as a part of the cost of construction and equipment.

Dr. Bemis does agree that it was originally a legitimate expense.

Before leaving this Sheet No. 41, I want to add that in my own opinion these items were originally properly entered upon the books of the company, and their distri'ution over other property accounts will be disregarded in the testimony that I shall offer based upon their sheets, and further to say that in this respect I am handling the matter substantially the same as Mr. Sangster did.

The next statement, Sheet No. 42, shows the construction accounts as they appeared on the books of the company on various dates, namely:

In the first column, after closing December 31, 1899; in the second column, on December 31, 1900; in the third column, December 31, 1901; in the fourth column, before closing September 30, 1902; and in the fifth column, after closing as of September 30, 1902.

As of September 30, 1902, all property accounts were closed into one account known as "Cost of Plant," and a note on this Sheet No. 42 shows that this account includes the cost of the United States Electric Lighting Company's property rights and franchises, as follows:

Capital stock paid, $3,250,000.
Funded Debt Assumed, $650,000.
Floating Debt Assumed, $651,967.37.

a total of $4,551,967.37, less current assets taken over $213,391.20, or a net cost of $4,338,576.17.

The next statement, Sheet 43, shows in the first column of the construction accounts as they appeared on the books of the company on December 31, 1902; the second column, December 31, 1903; the third column, December 31, 1904; the fourth column, December 31, 1905; the fifth column, December 31, 1906; the sixth column, December 31, 1907; the seventh column, December 31, 1908, and the eighth column, December 31, 1909.

On this date, in accordance with the classification of accounts of the I. C. C., all construction accounts were closed into one account known as "Fixed Capital, Plant and Equipment, December 31, 1909, devoted to operations," and this amount at that date was $9,775,793.55.

The next sheet was No. 44 and shows the construction and equipment accounts on various dates, as follows:

First column, December 31, 1910; second column, December 31, 1911; third column, December 31, 1912; fourth column, December 31, 1913, and last column, June 30, 1914.

The next sheet, No. 45, shows the construction and equipment accounts as they appeared on the books of the company on various dates; the first column, as of December 31, 1914; the second column, June 30, 1915; the third column, December 31, 1915, and the last column, June 30, 1916.

This now shows the total of plant and equipment as it appears on June 30, 1916, and agrees with the same items appearing on the balance sheet, and that total is $12,134,347.01. The total plant and equipment as of June 30, 1916, as recorded on the books of the company under construction accounts is thus shown, but does not represent cost of property of physical property.

The witness next introduced Sheet 30 which he described as "Summary of the construction and equipment accounts," made up from Sheets 40 to 45, inclusive, and divides the expenditures into four groups:

Group 1, purchase by the Potomac Electric Pow-r Company of the Potomac Light & Power Company's property rights and franchises, $270,301.09;

Group 2, additions to property, September 30, 1896, to September 30, 1902, $1,500,206.66;

Group 3, purchase of United States Electric Lighting Company, $4,338,578.17;

Group 4, additions to property September 30, 1908 to June 30, 1916, $6,025,263.09;

A total of $12, 134,347.01.

The sheet was offered in evidence as "Ham Exhibit No. 27."

939 The first group refers to the property of the Potomac Light & Power Company of Virginia. The detail of this is shown on Ham Exhibit No. 28. This purchase was made with cash, $50,000, and notes, $205,000, a total of 255,000, and the assumption of current liabilities amounting to $39,695.08, making a total of $294,695.08, from which might be deducted the current assets taken over, amounting to $16,560.76, leaving the net cost of the property to the Potomac Electric Power Company, $378,134.32.

This net cost to the Potomac Electric Power Company was carried on the books of said company to construction account, $270,301.09, and to income account and profit and loss account, deficit, representing the accumulated deficit of the Potomac Light & Power Company to September 30, 1896, as shown on the books of the said company, $7,833.23.

* * * * * * *

When this was taken over on the books of the Potomac Electric Power Company, it was charged to one account known as Original Plant and Franchises, $255,000, and to different property accounts, amounting to $15,301.09, this being shown on statement No. 32 and is offered in evidence as "Ham Exhibit No. 29."

Sheet No. 32 also shows, in a note, a distribution that was made during 1897, crediting the account known as "Original Plant and Franchise" and charging different property accounts, the aggregate of such charges being respectively $46,000.

The $15,301.09 represents entries which had been made on the books of *of* the Potomac Light & Power Company for additions from the late fall of 1895 down to September 30, 1896. It would appear that that represents the expenditures by the Potomac Light & Power Company over a period of some nine months.

The cost of the property shown in Group one is $278,134.32. This amount is not carried in the statement of the cost of the Potomac Electric Power Co. It is shown in my statement of Construction and Equipment as $270,301.09, the difference, $7,833.23, having been charged to profit and loss. This amount should be carried in this statement of the cost of the Potomac Electric Power Company as $278,134.32.

It also covered the property of the Potomac Electric Power Company of the District of Columbia, the Potomac Electric Company and the plant in Eckington. This includes all property, rights, privileges and franchises, both tangible and intangible, of the Potomac Electric Power Company as a going concern or as a completed plant.

There is nothing on the books of the Potomac Electric Power Company from which one can determine the amount of physical property acquired. The bill of sale, which has already been introduced in evidence, does not describe the property with particularity, but I find in the minutes of the Potomac Light & Pow-r Company, under date of January 25th, 1896, a statement of the property acquired by that company from O. T. Crosby and Charles A. Lieb, which is described as follows:

"Whereupon, Mr. H. T. Purdy presented the following resolution:

"1. Be it resolved, That in lieu of cash payments by O. T. Crosby and Charles A. Lieb for their subscriptions to the capital stock of the Potomac Light & Power Company of Washington, D. C., aggregating 2,987 shares of the stock of said company, the said Charles A. Lieb and O. T. Crosby shall be permitted to transfer and convey by proper deed or deeds or other proper conveyances, all their and each of their right, title, interest and possession in and to the following properties, effects, contracts and business now carried on by them in the District of Columbia, to wit:

"1. All their rights, title, interest and possession in and to a certain electric plant and system now opened by them in that portion of the District formerly called Georgetown, and extending over and through certain portions of the County of Washington, including about 12 miles of electric poles, and about 60 miles of electric wires, together with the electric plant at the Virginia end of the Chain Bridge, being the entire electric plant and system and properties acquired by them under a conveyance from one Amherst H. Wilder, dated on or about the — day of ——, 1894, together with all the extensions and additions since and recently made thereto by said Crosby and Lieb, together with all the privileges and franchises thereto*n* belonging or appertaining, subject to an encumbrance thereon of $5,000 to be assumed by this company.

940 "2. All the right, title and interest in and to a certain electric lighting and power plant, situated in that part of the District known as Eckington, consisting of engine, dynamos, electric wires, poles and appliacnces belonging or appertaining to said electric lighting plant and system, together with all the privileges and franchises thereto*n* belonging.

"3. Also all the rights, interest and profits of the said Lieb and Crosby or either of them in, to or under the following contracts, for supplying electric current and power, viz: (*a*) Contract with Washington & Arlington R. R. Co., (*b*) Contract with the Washington & Great Falls R. R. Co., (*c*) Contract with the Glen Echo R. R. Co., and (*d*) Contract with the Tennallytown & Rockville R. R. Co.

"4. All the right, title, interest and possession of said Crosby and Lieb in and to a certain lease of all that certain piece of property situated in that portion of the City of Washington, D. C., formerly known as Georgetown and known as the Dent-Foundry property, containing 100,000 square feet of land, with buildings thereon; said lease containing an option to purchase said land and improvements, and said lease and option having been secured by said Crosby and Lieb, upon their securing the discharge of certain liens thereon aggregating $17,500; together with all the improvements placed upon said property by said Crosby and Lieb, and all improvements now in course of construction thereon, including a foundation for large smokestack.

"5. Also all the right and title of the said Crosby and Lieb under a certain contract of $110,000 made by them with 'Wm. Cramp &

Sons, Ship and Engine Building Company,' of Philadelphia, dated February 7, 1896.

"6. Also all their right, under a contract with the Philadelphia Engineering Company, dated December 12, 1896, and the contract price being $5,000.

"7. The securement and installation of certain dynamos valued at $20,000, in the power house of said company in Georgetown, D. C., the title whereof, however, is not intended to be transferred or assigned to this company.

"8. Also all the right of said Crosby and Lieb under all contracts made with them for electrical current or light, both public and private, this company to assume all liability on said contracts."

(This is to be found at page 23 of the minute book of the Potomac Light & Power Company, January 25, 1896, to June 30, 1896. The additions, amounting to $15,301.09, shown on Sheet 32, were almost entirely made subsequent to the date of that minute. That minute is dated January 25, 1896, and as I say, the additions, amounting to $15,301.09, as shown on Sheet 32, were almost entirely made subsequent to that date.)

"That upon satisfactory conveyances of all of said properties, rights and franchises, there shall be issued to said O. T. Crosby certificates for shares of the capital stock of this company, fully paid and non-assessible, and to Charles A. Lieb certificates for a like number of shares fully paid and non-assessible."

The only further information that I have been able to ascertain as to the property acquired is that contained in the report to Congress, to which reference has already been made in the evidence, known as Senate 54th Congress, First Session, Report No. 935, in which report, this statement is made:

"These lines, connections, the plants that had been and are now running them, and the new power station very nearly completed, represent an investment of about $380,000. Of this total amount the machinery in the new plant alone represents very nearly $150,000."

The figure of $270,301.09, shown in the group statement as Group No. 1, includes all the property then owned by said company, that is, the companies referred to in that group, and include, as well,
941 the cost of organization, promotion, financing and development of the properties then owned or otherwise controlled by the Potomac Light & Power Company of Virginia.

There are no records available by which you could ascertain how much for each property formed part of that purchase. This was stated in one sum on the books of the Potomac Electric Power Company as $255,000, plant and franchises, with the additional expenditures carried in property accounts amounting to $15,301.09, shown in detail on Sheet 32.

The following is an extract from the minutes of the Potomac Electric Power Company:

"A meeting of the officers and directors of (being the charter members of) the Potomac Light & Power Company, of Washington, D. C., incorporated under the laws of Virginia, by a decree of the Corporation Court of the City of Alexandria, Virginia, passed on the — day of ——, A. D. 1896, was this day of ——, A. D. 1896, held pursuant to notice to each and all of said charter members designated by said charter as officers and directors of said company.

Mr. O. T. Crosby, being named as President of said company in said charter, called the meeting to order, and directed the Secretary to read the charter and to ascertain and report the names of those present.

Whereupon, the Secretary read the charter and reported that the following gentlemen were present: O. T. Crosby, D. M. Anderson, B. F. Mackall, D. S. Mackall and F. E. Sinclair.

Mr. F. E. Sinclair, named as secretary and treasurer in said charter, thereupon announced that he desired to tender his resignation as an officer of said company, whereupon, on motion of Mr. D. S. Mackall, his resignation was accepted, and Mr. H. T. Purdy, being nominated, was elected in his place as secretary and treasurer, and as a director of the company, and thereupon Mr. Purdy assumed the position of secretary of the meeting and Mr. Sinclair retired. Thereupon, Mr. D. S. Mackall submitted the resignation of Mr. B. F. Mackall as a director of said company, whereupon Mr. H. T. Purdy moved that Mr. Mackall's resignation be accepted and that Mr. Charles A. Lieb be declared elected in his place. The motion was unanimously carried, and the President announced that Mr. Mackall's resignation was accepted and that Mr. Lieb was duly elected in his place.

Thereupon, Mr. D. M. Anderson tendered his resignation as a director of the company, and, upon motion, Mr. Henry W. Cramp was elected to the vacancy.

Thereupon, Mr. Mackall nominated Mr. Charles A. Lieb for vice-president who was unanimously elected.

Mr. Mackall thereupon moved that the secretary be authorized to invite subscriptions to the capital stock of the company, and to report the result. The motion was carried.

Accordingly the secretary announced his readiness to receive subscriptions, and thereafter reported the following subscriptions:

O. T. Crosby	1,494 shares.
Charles A. Lieb, of New York	1,493 shares.
S. Dana Green	10 shares.
D. S. Mackall	1 share.
Henry W. Cramp, of Philadelphia	1 share.
H. T. Purdy	1 share.
Total	3,000 shares.

942 The Secretary further reported that the above subscribers had paid in cash to him two dollars per share on the stock so subscribed for by them.

Thereupon, Mr. Mackall moved that the incorporators and their successors as such and as stockholders accept the charter of the corporation granted by the Corporation Court of Alexandria City, Virginia, to this company, The motion being put was unanimously carried.

Mr. Mackall moved that the seal of this company be an impression as follows:

A circle with the name of this company on its outer edge, the word "Seal" and the year 1896. The motion was adopted.

The company being now fully organized, and all the stock subscribed for being represented at this meeting, in person, or by proxy, with the exception of one share, Mr. D. S. Mackall moved that the president and directors be authorized to fix the terms for the payment of subscriptions to the capital stock of the company, and that in payment of such subscriptions they be authorized to accept property, material necessary and proper to enable the company to enter at once upon the business for which it was incorporated, and upon the payment of such subscriptions in cash or in such properties and materials to issue certificates of stock of the company under its seal, signed by its President and countersigned by its Secretary.

The motion was put and unanimously carried.

Upon motion of Mr. Mackall, Messrs. Crosby, Lieb and Cramp were selected as a committee to draft by-laws for the future government of the company.

Thereupon, on motion of Mr. Lieb, the meeting adjourned.

(Signed) H. T. PURDY,
Secty.

Washington, D. C., Jany. 25th, 1896.

A meeting of the President and directors of the Potomac Light & Power Company of Washington, D. C.

Present: O. T. Crosby, Charles A. Lieb, H. T. Purdy and D. S. Mackall.

Mr. Crosby acting as Chairman and Mr. Mackall acting as Secretary.

Washington, D. C., June 30, 1896.

Meeting of directors of the Potomac Light & Power Company.

Present: O. T. Crosby, Charles A. Lieb and F. C. Stevens.

The directors, by resolution duly carried, authorized the President of the company to offer its entire assets to the Potomac Electric Power Company, of the District of Columbia, for the sum of $255,000, payable as follows: $50,000 in cash on closing the transaction; the balance in installments of $50,000, $50,000, $50,000 and $55,000 every ten days thereafter, deferred payments to be witnessed by the notes of the Potomac Electric Power Company given to P. L. & P. Co; said notice to run without interest, with the privilege on the part of P. E. P. Co. to complete payment within ten days.

On motion of Mr. Lieb, duly carried, it was noted that proceeds of sale should be divided prorata among its stockholders of record, and the treasurer was instructed to make such distribution.

The President of the company was given authority to appear before Justice of the Peace, Notary Public or other proper officer authorized by law to take acknowledgements of deeds, and execute such deeds or instruments as might be necessary to affect the transfer of the property of the Potomac Light & Power Co.

943 On motion of Mr. Stevens, the meeting adjourned.

(Signed) JAS. B. LACKEY,
Act. Secretary.

The witness identified a statement classifying all the items contained in Group 2 and shown in Sheet 30 referring to additions to property September 30, 1896, to September 30, 1902, amounting to $1,500,206.66 as nearly as practicable with the present I. C. C. classifications.

They are classified and stated in this way in the second column on Sheet 57.

The items in Groups 1 and 2 on Sheet 30 make a total of $1,770,507.75 and are the figures also shown on Sheet 42 under the heading "Before Closing September 30, 1902."

The detail showing the cost of the United States Electric Lighting Company to the Potomac Electric Power Company is shown on Sheet 36 prepared from the books of the company and introduced as Ham Exhibit No. 30.

This shows an amount of $4,338,576.17, consisting of capital stock issued and funded and floating debt assumed, less current assets taken over and is shown in plant and equipment.

The property taken over consisted of all of their property, rights and franchises covering both tangible and intangible property, and included not only the cost of the United States Electric Lighting Company's physical property but the cost of organization, licenses, patent rights, promotion, cost of financing, cost of development, including the same character of items for the early companies, namely, the Heisler Electric Company and the Brush-Swan Company.

There was no inventory.

The United States Electric Lighting Company, among other things, had a power plant located at 14th and B streets, northwest. The records of the company do not show the details of the existent property September 30, 1902, nor of the customers at that time, but, as bearing upon the subject, I find records showing that on December 31, 1901, they had 2,714 meters, and on December 31, 1902, on the lines of what was formerly the United States Electric Lighting Company 3,234 meters, and in using this word "meters" I mean to throw light upon the number of customers rather than just the physical fact of the ownership of the meters.

Likewise on December 31, 1901, they had a connected load of the equivalent of 166,997 16-candlepower lamps which had been increased to 209,402 on December 31, 1902, on what was formerly the lines of the United States Electric Lighting Company. On December 31, 1901, they had 2,631 customers. On December 31, 1901, they had 249,461 feet of conduits.

Subject to correction, I will say lineal feet; 1,157 commercial arc lamps, 744 street arc lamps and 201 street incandescent lamps.

The lines of the company were located in the central district of the City of Washington. At that time the company had gross earnings of about $535,000 per annum, and net earnings of about $275,000 per annum.

The population of Washington in 1900 was 278,718, according to the Census reports.

The number of gas consumers as of December 31, 1902, were approximately, 34,000.

The purchase of this property not only brought about a central plant for the generation of power, but materially reduced the costs of administration and management, and prevented unnecessary duplication of plant investment, and made possible the elimination of duplication of underground and overhead construction.

The United States Electric Lighting Company, as I have heretofore stated, was centrally located in the heart of the City, and for the Potomac Electric Power Company to take on business in either that portion of the City or other portions of the City it would be necessary for them to have their own lines of overhead and underground construction, whereas, by acquiring the United States Electric Lighting Company all that waste of investment was eliminated.

There had been contentions over the rights to the use of certain streets, which had resulted in litigation in courts. The Harris Report which has been referred to refers to this litigation.

944 Unquestionably, the books of the company show the purchase by the Potomac Electric Power Company of the United States Company was a profitable transaction on the part of the Potomac Electric Power Company, because, as the result of the consolidation and the consequent economies of operation, the company was enabled to make sufficient earnings to pay dividends on its stock, whereas, prior to the consolidation the Potomac Company had paid no dividends.

In the judgment of the witness, the price paid by the Potomac Electric Power Company for the property, rights, and franchises of the United States Electric Lighting Company was reasonable, in the light of surrounding conditions, because the development of the business made it possible for the company to earn reasonable profits. Furthermore, the possibilities or the potential value of the United States Electric Lighting Company was great; the business had not been developed, which is very clearly manifested by the great difference at that time between the number of electric customers and gas consumers. Then, later on, it made possible the erection of a central plant of large capacity which could not have well been done by two competing companies.

I have already testified as to the licensee rights of the United States Electric Company which permit that company to use certain apparatus in the District of Columbia to the exclusion of the Potomac Electric Power Company. The right to use those appliances was absolutely essential to the proper and normal development of business of any electric company here. The fact that the Potomac Electric

Power Company did not have the right to use such apparatus put them in a disadvantageous position. The fact that the United States Electric Lighting Company possessed the right to use certain apparatus that the Potomac Electric Power Company did not have contributed to the desirability for the purchase by the Potomac Electric Power Company of the United States Electric Lighting Company.

The franchises as owned by the United States Electric Lighting Company did not limit the operation on the parrt of that company to the center of the City, but that is where most of the business of the United States Electric Lighting Company was done.

It was in accordance with proper accounting for the Potomac Electric Power Company to charge to construction and equipment the cost to it of the property, rights and franchises of the United States Electric Lighting Company. Congress had not at that time prescribed any method of accounting.

On September 30, 1902, the Potomac and the United States Electric Lighting Company were owned by the same company; to wit, the Washington Railway & Electric Company.

The fact that the railway company and the lighting companies were brought under a single control was brought to the attention of Congress at or about the time of the passage of the Enabling Act or the act approved June 5, 1900, and it was stated before the committees as a reason for the passage of the Enabling Act permitting the Washington Railway & Electric Company to own the stock of the lighting companies then controlled by the same men who controlled the railways mentioned in the Enabling Act. I do not know whether it was actually called to their attention in that form, but that must have been, I would say, the understanding if it was to be in a common ownership, and you could draw no other inference. If it is known that all of the stock is in common ownership the earnings must go to that common owner.

It was brought to the attention of Congress that some of the railways then controlled by the men who controlled the companies described in the Enabling Act were in a run-down condition.

I remember that, in the Act of 1900—June 5, 1900—distinctly that it stated we were not to take over the property of Electric Lighting Company, that is to say, that the railroad company was not to take over the property, and, I think, the franchises of the Lighting Companies. I could not very well forget that in view of the subsequent happenings. It was a very unfortunate condition and one that I believe this Commission will eventually realize is an unfortunate one, but which Congress failed to recognize upon the request of the company very largely, I think, through the position of this Commission.

The charter of the United States Electric Lighting Company expired on September 30, 1902, and it was of this date that the Potomac Electric Power Company took over the property, rights and franchises of the United States Electric Lighting Company.

There was the law of March 1, 1901, requiring reports of receipts and expenditures by lighting companies. The fact that the Potomac

Company acquired the rights of the United States Company was reported to the Commissioners of the District, and on July 30, 1903, the following letter was addressed to the Commission:

945 "July 30, 1903.

"To the Honorable Commissioners of the
District of Columbia,
Washington, D. C.

"GENTLEMEN:

"In compliance with the provisions of an Act making appropriation to provide for the expenses of the government of the District of Columbia for the fiscal year ending June 30, 1902, and for other purposes, approved March 1st, 1901, I have the honor to submit herewith statement of receipts and expenditures for the United States Electric Lighting Company for the fiscal year ending June 30, 1903:

"Receipts:

"Cash balance, June 30, 1902	$6,266.59
"Gross earnings from operation	99,784.63
"Miscellaneous income	3,804.43
"Loans and bills payable	13,902.33
"Total	$123,757.98

"Expenditures:

"Expenses of operation, maintenance, renewals, alterations and extensions	$80,897.62
"Taxes and interest	20,218.97
"Bills payable	8,346.99
"Open accounts	5,349.69
"Cash balance, September 30, 1902	8,945.71
"Total	$123,757.98

"On September 30, 1902, the charter of this company expired. Its property was purchased by the Potomac Electric Power Company, and has been operated by said company since that date.

"Respectfully,

"UNITED STATES ELECTRIC LIGHTING COMPANY,
"By GEORGE H. HARRIES,
Vice President."

The law approved July 1st, 1902, required reports to the Personal Tax Appraisers of the gross earnings of the company. Those reports were made on the forms of the Personal Tax Appraisers in due course of business. Similar reports have been filed for suc-

ceeding years. The tax upon franchise or gross earnings became effective July 1, 1902, which provided that electric lighting companies shall pay 4 per cent of the amount of their gross earnings for the preceding year ending on the 30th day of June.

Prior to 1902, the company was paying a tax on real property. At the time these franchises of the United States Electric Lighting Company were bought by the Potomac Electric Power Company, there was no tax of any kind in the District of Columbia on them, whether they were the franchises of the right to be a corporation, the franchises of the right to use a street or anything else.

The Potomac Electric Power Company pays a tax upon its pole lines and in addition — this a tax on real estate and conduits.

Since the gross income tax law has been passed, the Potomac Electric Power Company has paid $709,712.38, and includes the payment testified to that was made by the Potomac Electric Power Company for and in behalf of the United States Electric Lighting Company.

The witness then introduced a balance sheet (No. 6) of the United States Electric Lighting Company as of September 30, 1902, which was filed as Ham Exhibit No. 31, and testified that it shows the assets and liabilities of the United States Electric Lighting Company as appeared on their books September 30, 1902. The assets
946 consist of cost of plant, $2,081,959.75 and current assets amounting to $492,856.99, a total of $2,574,816.74.

The liabilities show capital stock $1,097,600; funded debt $650,000, and profit and loss surplus $175,249.37.

The cost of plant, $2,081,959.75, should be considered in connection with the note appended to the statement.

To the cost of plant as shown on the balance sheet, $2,081,959.75, should first be added the sum of $278,909.26, construction for the year 1900 charged to profit and loss, making a total of $2,360,861.01, which agrees substantially with the figures shown by Mr. Sangster.

The witness does not agree with Mr. Sangster that this represents the cost of the plant of the United States Electric Lighting Company even as shown by the books, because the reconstruction account charged to profit and loss in 1900, amounting to $47,494.72, should be added to the cost of plant, and, in fact, a considerable portion of that is added by Mr. Sangster to cost of plant in his analysis of plant additions; and also that there should be added to cost of plant sundry arbitrary charges against plant account for depreciation from 1894 to 1901, inclusive, amounting to $330,635.97, making the total cost of plant of the United States Electric Lighting Company $2,738,998.70 at the time of the purchase by the Potomac Electric Power Company.

This cost should further be increased by overhead charges for engineering, superintendence, administration, interest during construction, and other similar costs; and also cost of organization, financing, promotion and development which were not stated on the books of the United States Electric Lighting Company.

These arbitrary credits should be added because the charges of that kind had nothing to do with the cost of property.

These items that were charged off as depreciation was not apparatus put out of commissioner and scrapped; they were just arbitrary amounts which had no reference to apparatus that had gone out of service.

The witness thinks that in regard to the item of $278,000, it is properly included as a part of the cost even though it were distributed to the stockholders. It has nothing to do with the cost of the property, and in that respect the witness is in agreement with Mr. Sangster. It was simply when the books of the United States Electric Lighting Company were closed on September 30, 1902, that this item appeared as cash on hand, but, as a matter of fact, it had been disbursed to the stockholders of the United States Electric Lighting Company as profits, but it was carried in a special fund, or supposed to be in a special fund, with the Commercial Trust Company of New Jersey, and was so shown on the books of the United States Electric Lighting Company. The disbursement to the stockholders has nothing to do with it. This was the actual cost of construction during the year 1901, and the company made an arbitrary charge, charging that off to profit and loss. Subsequently that transaction was reversed because that money belonged rightfully to the stockholders.

In this balance sheet, Ham Exhibit 31, the cost of plant account is shown to be $2,081,959.75. This item is supposed to be in cash in the New Jersey Trust Company and is not included in that total, but is carried in current assets. If that had been expended in building that plant it would then have been carried in the plant account, and is included in the item.

There is no question about the propriety of including it in cost of plant account as stated by the United States Electric Lighting Company on September 30, 1902, although at the time their books were closed and the company went out of existence it had been arbitrarily written out of that account.

The total given on this Sheet 36 as $4,338,576.17, is also referred to on Sheet 30 as Group 3, under the heading "Purchase of the United States Electric Lighting Company."

947 Testimony of Mr. Ham resumed Dec. 18, 1916.

Taking up again the item of $278,908.26, appearing on Sheet No. 6, the witness referred to page 7 of Mr. Sangster's report, in which he adds to the cost of plant and equipment, as per United States Electric Lighting Company's balance sheet, $2,081,959.75, an item "construction expenditures for year 1901 charged by United States Company to surplus account $279,465.79", stating total plant and equipment as $2,361,425.54.

Chairman Kutz: I think there is no doubt about that. We understand that.

Mr. Ham: I thought from the questions you put on Saturday that it was not clear.

Chairman Kutz: I think it is now.

Mr. Sangster handled this item in the same way the witness did, substantially.

948 Patent Rights and Licenses—Ham.

The witness has read Dr. Bemis' testimony where he states, in substance, that the capital of the United States Electric Lighting Company, covering the cost of patent rights and licenses, should be eliminated to that extent for the reason that these patent rights and licenses have expired, but does not agree with Dr. Bemis' reasons because these expenditures were necessary and proper at the time they were made. That was the only way by which the company could establish itself as an electric lighting company, and even if the patents have expired they should be included in capital account, if not as patent rights, certainly as a development cost, and should be taken into consideration when ascertaining the cost of construction and equipment.

Provision is made for charging items of this character in the uniform system of accounts promulgated by the I. C. C.—"E-303, patent rights."

There is no provision in said system for the elimination of the cost of patent rights and licenses from capital or for amortizing them out of income.

In the capital stock, cash to the amount of $38,466, capital stock $120,000 and par value bonds $13,500, a total of $171,966.

Indirectly these expenditures affect the cost of physical property for the reason that by payments under these agreements the company was allowed special discounts in connection with apparatus bought under them.

The witness has read the testimony of Dr. Bemis where he testified that he sometimes had applied a value based upon the earning power of utilities, and particularly in the Baltimore case, where, in arriving at the value of the utility, he applied the factor of twenty times the net earnings; and applying the same factor to the earnings of the United States Electric Lighting Company at the time of its purchase by the Potomac Electric Power Company, the net earnings of the United States Electric Lighting Company at that time were about $275,000 per annum, which, multiplied by twenty, would bring a value of about $5,500,000, arrived at by the method used by Dr. Bemis in the case mentioned. That is over a million dollars in excess of the amount paid by the Potomac Electric Power Company for the property, rights and franchises of the United States Electric Lighting Company.

Referring to this Sheet No. 6, plant account, the journal entries covering the arbitrary charges against plant account for depreciation show that they did not apply to any particular property, and did not apply to any particular loss.

In October, 1894, appear journal entries in journal No. 1, folio 493, as follows:

Debit profit and loss account $50,000; credit cable account $50,

000; amount authorized by the president to be charged off for depreciation.

Another entry, the same folio, debit profit and loss $30,000, credit dynamo account $30,000, amount authorized by president to be charged off for depreciation.

Another entry, the same folio, debit profit and loss $10,000, credit engine account $10,000, amount authorized by the president to be charged off for depreciation.

Another entry, the same folio, profit and loss debit $10,000, credit boiler account $10,000, amount authorized by president to be charged off for depreciation.

Those items aggregate $100,000, and explain the item on Sheet No. 6 denominated "year 1894."

October, 1896, Journal No. 2, Folio 201, appears the following entry; Debit profit and loss $95,635.97, and at this point I will ask that a correction be made in the original on Sheet No. 6, 949 where, through a clerical error, that item is entered as $90,-635.97, instead of $95,635.97. The footing, however, is correct. This is the entry: charging profit and loss $95,635.97, credit boiler account $4,696.84, credit dynamo account $6,058.44, credit engine account $4,524.81, credit property account $55,780.40, chedit cables account $7,590.02, credit conduit account $16,985.46, amount authorized by committee on depreciation appointed by directors.

Similar credits are entered October, 1897, on Journal 3, Folio No. 48, $50,000, of which $20,000 is credited to boiler account, $20,00- credited to dynamo account, and $10,000 to engine account, amount charged off for depreciation.

December, 1898, Journal 3, Folio 207, appears the following entry: debit profit and loss $25,000, credit to engine account $10,-000, to dynamo account $10,000, to boiler account $5,000, amount ordered to be charged off for depreciation by stockholders at regular annual meeting held at Harper's Ferry November 9th.

In December, 1900, journal 6, Folio 115, appear similar debits and credits to plant account, $30,000, charged off for depreciation.

In December, 1901, a debit to profit and loss of $30,000, credit cost of plant, $30,000, charged off to depreciation against profit and loss.

With regard to the items included in Group 4, the witness prepared a classification of said items, arranged as nearly as practicable in accordance with the present classification of the I. C. C., and they appear on Sheet 57, in the third column headed "Additions September 30th, 1902, to June 30th, 1916." This statement also shows in the fourth column, the total of the second and third columns on said statement.

This sheet was prepared by summarizing the additions from September 30th, 1902, to June 30th, 1916, the said summary being taken from the sheets showing construction expenditures during that period already testified to.

This statement was offered in evidence and marked "Exhibit Ham No. 32."

The aggregate of $12,134,347.01, covering expenditures for construction and equipment June 30th, 1916, to which the witness has testified, includes no items that were improperly charged to construction and equipment.

It is comparable with the figures shown by Mr. Sangster on page 15 of his report, amounting to $11,529,173.67, referred to in his report on page 4 as Plant and Equipment July 1, 1914, except that the figure that I have used is that of July 1, 1914.

No deductions should now be made from this amount, but, on the contrary, in order to state the cost of construction and equipment there should be added the figure to which I have already testified, and certain other items which have been added to the property expenses and income account. Not only has the property been maintained in the highest possible state of efficiency, but material improvements, alterations and betterments have been made through operating expenses.

950 Equipment Sold, Scrapped, or Abandoned—Ham.

Referring particularly to that portion of Mr. Sangster's report on page 15 which has to do with any elimination from capital on the ground of loss on equipment sold, scrapped or abandoned, the witness is of the opinion that any such elimination is improper. With the exception of power station apparatus, all of the property of the Potomac Electric Power Company, including that purchased from the Potomac Light & Power Company and the United States Electric Lighting Company, has been maintained in its entirety. It may be true that some abandonments of line and other distribution and transmission property have been made, but they have been properly accounted for at the time of abandonment, with perhaps minor exceptions.

As to power station apparatus, we admit that the investment of the company in power station apparatus at its Georgetown plant, and possibly some sub-station apparatus, has been superceded and has not been written out of our property accounts for the reason that we have looked upon these losses in power station apparatus as a necessary development cost and properly included in the cost of the present property of the company.

Mr. Sangster, in his final findings, makes no allowances for development cost.

Dr. Bemis admits that this covers necessary cost to the company, but states it should be amortized out of past earnings.

The witness thinks the item, if correctly stated, should be considered a development cost.

The development cost of property should cease when it reaches beyond the early period. Thinks the Potomac Electric Power Company has reached that stage now.

It is rather a hard question to answer definitely, but as to the matters that I have testified to, certainly the early development of power stations and the doing away with isolated stations is a part of the development.

The time when you get to one central station would mark the time when the future loss on operations should be taken care of out of earnings.

The Benning Plant was put in commission in 1906. No construction was started in 1906; and the plant was put into operation in 1907.

The changes that took place in the *arc* or development of this unknown and untried industry should rightly be considered a part of the cost of development of that industry. When we think that it is only 35 years ago that the first feeble effort was made for applying electricity in this city, and that the whole art was then in its very beginning, I think we must give consideration to the early losses due to the supersession of apparatus.

The witness read Dr. Bemis' testimony on page 2496 and stated that he does not agree with Dr. Bemis that the item mentioned there should be amortized, either out of past earnings, nor out of capital account, nor out of the cost of construction and equipment, nor out of the amount on which the company is entitled to a return. They were admittedly properly charged to construction account, and when so charged represented actual cost of organizing, promoting and financing the company.

Witness was referring particularly to the *o*tems other than the $388,953.85 concerning which he has already expressed an opinion.

Neither the present classification of accounts, nor any approved method with which I am familiar, contemplated the amortization of such charges, with the exception of discount on funded debts. It is true that, according to a theory which was developed 8 or 9 years ago, discount on bonds should be amortized over the life of the bonds, but at the time it was charged by the Potomac
951 Electric Power Company to cost of plant it was in accordance with good accounting practice.

The only difference between the witness and Dr. Bemis on this question is that while both admit the legitimacy of these expenditures, one states it should be amortized out of past earnings, and the other that they should not be because they are legitimate expenses of the construction of the property, and there is no more reason for amortizing them out of past earnings than expenditures for physical property now actually in existence. They are necessary costs of organization, promotion, financing and development which are a necessary part of the construction and equipment of this property.

Referring to Dr. Bemis' statement, page 2497 of the testimony, relative to deductions from nominal assets with no corresponding deductions from gross income, and taking up the items which he describes as rights and franchises of the United States Electric Lighting Company of New York, opposite which is the amount of $200,000, the witness stated that Mr. Sangster is in error in describing this item as property, rights, franchises, etc., of the United States Electric Lighting Company of New York; and Dr. Bemis is in error in describing it as the franchises of the United States Electric Lighting Company of New York. The facts are,

as heretofore stated, that $100,000 was paid in capital stock by the United States Electric Lighting Company for the purchase of the Heisler Electric Company, a completed plant with an established business located at 10th and D streets, northwest, this City, and engaged in supplying electricity in that immediate vicinity. It had absolutely no connection whatever with the United States Electric Lighting Company of New York, and covered a purchase of physical property as well as of rights and privileges.

The only data we have on that is in the form of the bill of sale which has already been introduced in evidence.

I do not think there was any special assignment of the payment to any class of property. It was a lump sum payment for a completed, established business.

He does not know how many customers they had, or whether any of that physical property which was transferred under that bill of sale is now in existence and used. I think it is perfectly safe to say that it was used. Witness knows it was used from the analysis he has made from the accounts of the company.

The ordinary way of maintaining property is through maintenance account. I would suppose that, in the ordinary course of events, the entire distribution plant would be maintained.

Witness is pointing out the errors which Mr. Sangster and Dr. Bemis made.

Mr. Sangster makes no note in his report that there was any physical property acquired. He describes it entirely as a franchise, and Dr. Bemis accepts that as the fact and puts it in his testimony accordingly.

The company was not a large company. In fact, it would be most extraordinary if it was a large company.

Could not make any estimate what proportion of the $100,000 represents physical property. The facts are established in the bill of sale and he could not add to it.

There is no record of this old Heisler company that we have been able to ascertain. I do not think it was even an incorporated company. It was apparently this association of Stilson Hutchins and others doing business under the title of the Heisler Electric Company, although it is possible it was incorporated elsewhere than in the District of Columbia.

The property was carried as a lump sum of $100,000 charged to construction or plant account. They only had one account at that time. I think it was property account.

I should think that this describes all of the property that was conveyed to the United Electric Lighting Company, but its terms are not precise because it specifies "all other materials, franchises and effects formerly and now owned by the syndicate herein named,

with certain exceptions," which are not described in the
952 bill of sale.

The items of "All other materials, franchises and effects formerly and now owned by the syndicate herein named" are not described in the bill of sale.

There was also a payment in 1882, to the United States Electric

Lighting Company of New York, of $100,000 in capital stock. * * * by which the United States Electric Company of Washington obtained certain licensee privileges, but this can in no way be described as a franchise. Both of these items were necessary cost of property chargeable to capital, and should remain there.

Referring to the statement of Dr. Bemis contained on page 4497 of the testimony where he recites as franchises of the Potomac Light & Power Company, opposite which are the figures $208,189.50, the witness said—"The statement that this amount represents the cost of the franchises of the Potomac Light & Power Company is, in my opinion, incorrect and not in any way borne out by an examination of the books of the Company. The facts are that the property, rights and franchises of the Potomac Light & Power Company were purchased, as heretofore testified to, for $255,000, of which $50,000 was paid in cash and $205,000 in notes, which notes were afterwards paid in cash, in addition to which the Potomac Electric Power Company assumed a net floating debt of $23,134.32. The exact details of this purchase have been previously referred to, but with regard to the item of $255,000 the books of the Potomac Elec. Power Co., show that the first entry was charging this amount to plant and franchises. Subsequently the following credits were made to this account:

Eckington dynamos	$2,500.00
Eckington engine	2,500.00
Eckington line for house lighting	13,000.00
Eckington line for street lighting	5,000.00
House lighting	1,050.00
Street Lighting incandescent	100.00
Railway line	180.00
Conduit	3,000.00
Street Railway car service	360.00
Arc street lighting	1,050.00
Storage battery	100.00
Stationary motor service	160.00
Building and real estate	17,000.00
Total	$46,000.00

No explanation is contained in the books covering the reason for crediting the above amounts to the account "Plant and Franchise," and I am unable to say why the above entries were made. They are, however, rounds amounts and apparently represent the estimate of value or cost of certain items of property.

In Mr. Sangster's testimony he has eliminated all of these items from existing property, stating as his reason for so doing, that he thought all of these items had something to do with the Eckington installation. While I am rather inclined to agree, in the main, with this conclusion reached by Mr. Sangster, he manifestly and entirely omits from the statement of cost of physical property the entire investment made in Georgetown, including the plant at the Virginia end of the Chain Bridge, and, therefore, the figures he names cannot pos-

sibly represent the investment in physical property of the Potomac Light & Power Company. The company at that time had property which is described as consisting of about 12 miles of poles and about 60 miles of wire, the electric plant at the Virginia end of the Chain Bridge, together with the extensions and additions. The very figures hemselves show conclusively that the value or cost of the plant above referred to at the Virginia end of the Chain Bridge is not included. It is, in my opinion, manifest that the amount
952 of investment credited to plant and franchises could not possibly cover the cost or value of all of the above described physical property. The statement that $208,189.50 is the cost of franchises of the Potomac Light & Power Company is manifestly incorrect. I have already testified, also, in the amount paid for the purchase of the Potomac Light & Power Company were included necessarily the costs of organization, promotion, financing and development, not only of the Potomac Light & Power Company of Virginia, but also the Potomac Light & Power Company of the District of Columbia, the Potomac Electric Company and the plant at Eckington. There were no records available, nor, so far as we know, in existence, of the Potomac Electric Company, the Potomac Light & Power Company in the District of Columbia, or the plant in Eckington, and the only available record of the Potomac Light & Power Company is a ledger which covers the period only from 1895 to September 30th, 1896. This trial balance does not show issues of capital stock or bonds, and it is manifestly incomplete.

In my opinion, it was properly chargeable to capital, and should be allowed to remain there.

This amount cannot be divided into its elements, and determine what part represents physical property and what part represents franchises and other elements of value.

Does not all represent physical property, although it may be that amount of money had been spent for physical property up to that time. I think the value of the franchise is undoubtedly included. I do not know that it includes an item for conceiver's profit.

I do not think it would have covered very much scrapped, sold or abandoned property up to that time, because, if I remember correctly, it was started about 1891 or 1892.

It was not a fact that there was only about $46,000 worth of physical property placed on the books themseives as a result of this transfer.

The witness thinks he does know that some of this physical property that was taken over under this transfer *is* in existence now. The line- in Georgetown and Eckington are still in existence—not just as they were when they were bought—presumably some of it remains, but I should say that it is almost a sure bet that it has been replaced and renewed in all this length of time. If you wish to limit it to that which actually existed at that time I would say that approximately the greater part is no longer in existence, but I do not want that statement to go in without the qualification that it has been maintained in the ordinary course of business so that while the original property is not existent, it has been replaced by other property, acquired out of operating expenses.

My opinion is that the entire amount that was paid for that property as a completed plant should remain in the property account at this time, whether represented by physical property or by other things which might be called development cost.

954 Franchise U. S. Elec. Ligtg. Co.—Ham.

Referring to the tables of Dr. Bemis which he shows as Franchises amounting to $1,977,150.63, the witness stated that Mr. Sangster testified that this was nothing more than the difference between the book value of the United States Electric Lighting Company and the amount paid by the Potomac Company for the property, rights and franchises of the United States Electric Lighting Company. I agree with Mr. Sangster in this respect. I do not agree with Dr. Bemis that it does represent the franchises of the United States Electric Lighting Company, nor, as I understand it, does Mr. Sangster claim that it represents the franchises of the electric lighting company.

The conclusion of Dr. Bemis that this amount does represent the franchises of the United States Electric Lighting Company is not supported by the testimony of Mr. Sangster. As I have already testified, it was proper to include in the construction and equipment accounts of the Potomac Company the amount paid for the purchase of the United States Electric Lighting Company. In my judgment the amount paid was not excessive. It included not only physical property, but the expenses of organization, financing, promotion, and development, as well as the licensee and patent rights of said company and should remain in the construction account of the Potomac Company.

The witness, referring to Sheet No. 22, Account No. 1, read the same as follows:

Account No. 1, fixed capital, plant and equipment, December 31, 1909		$9,355,619.28
Account No. 2, expenditures for plant and equipment since December 31, 1909		2,788,727.73
Account No. 4, property abandoned		7,046.46
Account No. 6, 3 items therein included consisting of:		
540 shares electrical testing laboratory stock	$2,700.00	
¼ interest in Great Falls water power site	1,000,000.00	
Graceland Cemetery	116,155.80	
		1,118,855.80
Account No. 22, Unamortized Debt, Discount and Expense		201,174.42
And that portion of Account No. 24 of the expenses covering work in progress		9,420.29
Total		$13,470,843.98

There are certain overhead charges for engineering, supervision and administration, also for interest, taxes and insurance during construction, and also additions, betterments and improvements made through operating expenses that should properly be added to the cost of construction and equipment as of June 30, 1916, and stated that the business of this company has been constantly expanding, and additional extensions and construction and purchases of additional equipment have been going on all the time. This is clearly demonstrated by reference to the expenditures for construction and equipment shown on Sheets 40 to 45, which have already been introduced into the record. The company is constantly taking on new business, supplying new customers and building additional facilities to take care of such new business and new customers. It has been necessary to maintain an organization not only for operating the company and maintaining its property, but also for doing the construction work referred to. There has been no effort to charge to the cost of construction, except during the years 1896 to 1899, any of the cost of administration. There has been no effort at any time to charge to the cost of construction and equipment the expense of construction supervision, superintendence, use of tools and similar expenditures. Such expenses have been included in operating expenses.

955 The witness has prepared a statement of the operating expenses of the Potomac Electric Power Company taken directly from the books of the company under his direction and supervision which he believes to be correct and is shown by certain Sheets 25, 26, 27, 28, and 29 filed in evidence as Ham Exhibit No. 33.

Sheets 25 and 26 show the operating expenses for the three months of October 1, 1896, to December 31, 1896, and the yearly operating expenses for each calendar year for the years from 1897 to 1904, inclusive. On the last column on these statements is the total of the period from October 1, 1896, to December 31, 1904. These statements are prepared as showing the classifications actually used by the Company, and no restatement of the accounts has been attempted. Statement No. 27 shows the operating expenses for the years 1905 and 1906 and the total for said two years. Sheet No. 28 shows the operating expenses for the years 1907, 1908 and 1909, and the total for said three years. These operating accounts are likewise stated in accordance with the classification then in use.

Statement No. 29 shows the operating expenses in accordance with the present I. C. C. classification for the years 1910 to 1915, inclusive, and for the first six months of the year 1916, and the total of said accounts for the period from January 1, 1910, to June 30, 1916.

He has no statement of the betterments since 1902 or 1906 to the present time.

He divided these statements in the way he did because of the fact that at different periods in the company's history they have used certain different classifications of operating expense, and it has been more convenient to group together the years during which the same classification was in use. The total for the period was $8,753,603.96. The total expenditures for additions and extensions as contained in groups 2 and 4, shown on our Sheet No. 30, show respectively addi-

tions to property from September 30, 1896, to September 30, 1902, and additions to property September 30, 1902, to June 30, 1916. The total of those groups is $7,525,469.75.

These figures, taken in connection with the statements from which they are prepared, show conclusively that at all times in the history of the company it had been engaged in the work of constructing additions and extensions, as well as in operating the company, and it has maintained an organization competent for construction as well as operation; the balance of which has been included in operating expenses, with minor exceptions.

He has made a computation of the amount included in operation expenses for departmental supervision, inspection and expenses which should properly be included in the cost of construction and equipment. This is stated in detail on Sheet 65, and again stated, in somewhat different form, on Sheet 64, and thereupon Sheets 64, 65, 66, 67, 68, 69, 70 and 71 were offered in evidence and identified as Ham Exhibit No. 34, containing 8 pages.

For instance this first column on page 64 shows an account of the I. C. C. classification of operating expenses. Those are the titles of the account under the heading of "Account" is a list of accounts of the I. C. C., certain of those being further subdivided for convenience.

The first page applies to the year 1915.

The next column on Sheet 64 shows the amount that is to be prorated between operation and construction, and the last column shows the amount which it has been concluded is properly chargeable to construction, $37,384.70. The total construction work during the year in the departments over which this particular superintendence and supervision extended was $287,148.58. The percentage of the superintendence to the amount of construction is 13 per cent. That is the conclusion that was arrived at from the statements following, but each item is not 13 per cent. Some of the items would be 50 per cent approximately, and some 33 1-3 per cent. It is what engineers term a weighted average.

This construction work is that of the transmission and distribution system. In this computation all land, buildings and power station apparatus is in no way involved. This is simply the distribution and transmission system. Now, that work has been done all
956 these years at just bare cost of labor and material. The only overhead charge of any nature or description that I can recall, or that the records disclose, is the addition of the permit fee to the District of Columbia and for some minor items of hauling.

Now, I have here detailed analysis of typical jobs, which I will refer to by number in case the Commission desires to look further into the fact that this construction work has not carried any overhead costs. They have reported to the Commission in the last two years the amount of new construction. The amount so reported did not include overheads because it has never been the policy of the company to add these overheads to the cost of construction. They are added now in order to obtain the cost of construction. In other words the construction work of the company requires equal supervision. It is not fair to assume that the construction work of the

company should carry no supervision, which is what our books at the present time reflect. All of the construction has been included in operating account. I am not limiting it simply to superintendence, but to such items as stores expenses, purchasing department, stable account, automobiles, and superintendence and detailed drawing and engineering of that kind.

In reaching these figures shown here on the first page of Exhibit No. 34, he went very thoroughly into an analysis of these operating accounts to show what proportion of them was for ordinary repairs, replacements or new construction. They are shown on these sheets.

To attempt to describe briefly the processes by which we arrived at these figures, I would say, first, that the items of superintendence and other similar expenses which applied to both operation and construction, and which are the items concerning the distribution in which we are now interested are listed on Sheet 65 and aggregate $73,147.90.

Now, the department in which this supervision occurs is known by us as the construction department. That construction department is further subdivided into the construction department proper, including work on transmission and distribution systems, both overhead and underground; conduit department, which includes work on conduits and trench work; street lighting department, which includes planning and special outline of all public lighting; and engineering department, which includes preparation of plans, specifications, and general engineering functions.

The first thing was to distribute the items of operating account No. 38—I. C. C. Account 38—distribution superintendence, $32,436.70. I will correct my statement by saying that that is not the I. C. C. operating account number, but the company's operating account number.

We first divide this superintendence—this distribution superintendence account 38, as shown on page 65—into four groups, as shown on Sheet 66. We also divide on Sheet 67 the expense of automobiles, which is shown as a total of $14,143.24 on Sheet 65, into certain subdivisions on Sheet 67.

Sheets 68 and 69 answer the question propounded to me by the Corporation Counsel, and show the amount of operating expense work and the amount of construction work performed by each of these departments during the year 1915, arranged, subdivided, to show both operating expense accounts and construction accounts.

By calculating the percentages of construction and operating expenses, to the total work performed by those departments, we arrive at certain percentages shown in the two right hand columns of Sheets 68 and 69, and then apply those percentages in distributing all of the expenses as shown on Sheet 65, equitably to either construction or operation.

The total construction work done was $69,963.64 for the year 1915. Of that amount only $9,160.48 was in connection with operating expenses. The balance, $60,803.16, was in connection with construction. So that the expenses of supervision, so far as they

apply to the conduit department, have been apportioned 13.3 per cent to operation and 86.9 per cent to construction.

That is an extreme case. That is, by far, the highest of any percentage that we have, so far as the construction work goes. The work of the conduit department is, as you see, almost entirely construction work.

There is nothing estimated in this, with the exception of the apportionment of the street lighting department, $3,819.84, on Sheet 70, which the statement has clearly set forth, as follows:

"It being impracticable to ascertain with exactness the amount of construction work to which superintendence of the Street Lighting Department is applicable, said expense has been apportioned in connection with the judgment of the officers of the company—namely, 70 per cent operation and 30 per cent construction."

957 Other minor items have also been estimated. In those shown on Sheet 71 the superintendence of substations has been charged one-third to operation and two-thirds to construction, and the superintendent's assistants and clerks have been charged one-half to operation and one-half to construction; and superintendence in the electric meter department has been estimated at 75 per cent operation and 25 per cent construction.

All of the other figures are apportioned in proportion to the work performed by said departments, as between operation and construction, and the weighted average is about 13 per cent as applied to the expenditures for construction of the transmission and distribution systems.

You use the same percentage as applied to the total expenditures of that character back to the beginning as to year 1915 was an average year. That was looked into to see if that would be a fairly average year. Of course, it is impossible to include those figures for the entire history of the company; but I am satisfied that the work has been intelligently done, and I am confirmed in the opinion that I had previously, which was that about 15 per cent would be a fair overhead to add to this work; but I have used 13 per cent. I am satisfied that that is a perfectly fair, reasonable and conservative figure for the overhead charges which I have mentioned.

This does not include any items except those that are listed on Sheet 65 and referring particularly to the departmental superintendence, supervision and expense.

The total amount is shown on page 64 at $73,147.90.

I find that it would be proper to add to the cost of construction for work done by these departments the sum of $37,384.70 covering superintendence and so forth.

I have carefully analyzed the work, both as to construction and maintenance and operation, performed by the construction departments named, and the equitable allotments to both construction and operation of the amount of superintendence and so forth should go to each.

This construction did not carry any expenses for superintendence, store expenses, purchasing expenses and other similar overhead costs.

The account numbers showing the total construction aggregate

$287,148.58 fully set out in the column headed "B," under construction, on Sheets 68 and 69.

The witness has gone very carefully into the costs of superintendence for the year 1915 with the operating department of the company, and in his opinion 13 per cent is a fair allowance to be added to the cost of such construction work as has been performed under the supervision of the construction departments and is as much a part of the cost of construction as the bare cost of labor and material which has been included in the property account.

It is not the purpose of the witness to reflect upon the way these entries have been entered upon the books of the company. It has been perfectly proper to do it that way.

I do not think any classification of accounts can be promulgated that will entirely deprive a company of exercising a certain amount of discretion as to the policy that will be followed by that company.

I think some of these expenditures, now that we have analyzed them more critically than we ever had occasion to before, should more properly be included in construction account, but not all of them.

We have not had occasion to make as minute an investigation of these matters as we have in the course of the preparation of this case, and we find that some items have been included in operating expenses simply through oversight; that general instructions that have been issued in the accounting department to maintain the propriety of the charges to capital account have been so thoroughly observed that they have gone to the other extreme and failed to include in property account many things which should have been properly so included.

I have one item particularly in mind; lightning arresters, where it appears that for many years additional lightning arresters have been put upon the system and no charge made to capital account. Now we have stopped that. We have assigned a job number, so that these lightning arresters will hereafter be put into property account.

When property is scrapped or abandoned, it ought to be written out of property account, but that principle should not be applied to the beginning of the company's history. I have no option in the matter at the present time. Prior to that time, I think the
958 company was privileged to exercise its discretion in such matters.

The witness has prepared a statement showing the cost of work done under the supervision of said construction and has stated such amount in Sheet No. 8, introduced as Ham Exhibit No. 35 showing the classification of such expenditures, amounting to $4,036,982.20, covering the period from September 30, 1896, to June 30, 1916, and he thinks it fair and reasonable to add to the cost of construction a percentage of 13 per cent to cover cost of superintendence over this period which would amount to $524,807.69 shown on statement just introduced.

He prepared other statements enlight-ning the Commission of the

basis for arriving at the amounts testified to which were introduced as Sheets 64 to 71, inclusive.

959 General Administration—Ham.

The witness also identified a computation he had made of the cost of general administration during the year 1900-1916, inclusive, which was introduced as Ham Exhibit No. 36, Sheet No. 63, which he stated was prepared directly from the books and records of the company, and believes it to be correct, and for which he accepted responsibility.

From the statements of operating expenses which have been exhibited in detail in the record, I have made a statement of the cost of expenditure for salaries of general officers, Account No. 79; salaries of general office clerks, Account No. 81; general and miscellaneous expenses, Account No. 83; stationery and printing, Account No. 88; stable account No. 90; automobiles, No. 91; injuries and damages, No. 87; general law expenses, No. 82; maintenance of tools and implements, Account No. 73, and maintenance of general structures, Account No. 93, for the period 1900 to 1916, inclusive. They are covered by I. C. C. accounts E-220, E-221, E-222, E-224, E-230, E-232, E-229, E-223, E-201, E-240. The total arrived at from these accounts aggregate $1,574,255.69, none of which has been included in the cost of construction and equipment.

I mean that during the period from 1900 to 1916, construction account has not been charged with any of the costs of general administration, such as salaries of general officers, salaries of general office clerks, general office supplies and expenses, general and miscellaneous expenses, stationery and printing, stable account, automobiles, injuries and damages, general law expenses, and maintenance of tools and implements and general structures, with the exception that during the period from 1906 to 1916, the expenses of the stable were equitably apportioned between operation and construction, and since January 1, 1915, injuries and damages have been charged to operation or construction, according to whether the damage sustained was in connection with operating expense work or construction.

I do not mean that most of the injuries and damages were applicable to construction. I mean that up to the end of 1914 we charged them all to operation, regardless of whether the damage occurred during the progress of construction work or operation work; but beginning with January 1st, 1915, we charged the damage up to the class of work in which the injury occurred. Beginning with the year 1915, we deduct only eight thousand out of one hundred and twenty-eight thousand for construction.

As appears on Sheet No. 63, I have deducted from salaries of general officers the salary of the purchasing agent during the period it was charged to this account, namely, 1910 to 1916. * * * because the salary of the purchasing agent has already been included in the statement of distribution superintendence and, therefore, should be excluded from this statement of general administration.

For the same reason I have deducted from salaries of general office

clerks, the salaries of the purchasing department clerks from 1910 to 1916. I have also deducted from salaries of general office clerks the salaries of commercial department clerks from 1900 to 1909. Subsequent to 1909, commercial department clerks have been included in expenses of the commercial department. For the same reasons as above stated, I have excluded from general office supplies and expenses the expenses of the purchasing department charged to this account from 1910 to 1916. Also the expenses of the commercial department from 1900 to 1909.

From general and miscellaneous expenses I have excluded certain general and miscellaneous expenses which, in my opinion, have nothing to do with general administration and should not properly be prorated between operation and construction. These consist of valuation expenses and one-third of all other general and miscellaneous expenses for the period from 1900 to 1916, reducing the amount to be prorated between construction and equipment from $264,958.02, charged to the account "General and Miscellaneous Expenses," to the sum of $154,714.23 to be prorated. * * *

From the account Stationery and Printing I have deducted the expense of stationery and printing of the Commercial Department for the entire period from 1900 to 1916.

From the account Automobiles, I have deducted the expenses of automobiles, the expense of which has been included in the cost of construction superintendence, heretofore testified to, and have also deducted the expenses of automobiles used by the Commercial and Valuation Departments.

960 From the account Injuries and Damages I have deducted the charges applicable to operation only during the years 1915 and 1916, for the reason that subsequent to January 1st, 1915, all expenses of injuries and damages were charged to operation or construction, according to the class of work performed at the time the damage was sustained.

The sum of the items deducted from the total expense of general administration is $421,397.78, leaving a net amount of $1,152,857.91 to be apportioned between the cost of construction and the cost of operation.

Sheet No. 7 was then introduced by the witness and offered in evidence as Ham Exhibit No. 37, as to which he testified as follows:

It appears that the expenditures for physical property during the period from 1900 to 1916, after allowance for departmental superintendence and for administration expense already included in construction, amount to $6,440,266.39, being the total of the column headed "Physical Construction Expenditures."

During the same period the operating expenses, after allowance for construction superintendence already referred to, amount to $6,927,854.60. This makes a percentage of construction to total of operation and construction of 48 per cent, and prorating the amount of general administration according to this percentage shows an amount of $553,371.80 properly to be added to the cost of construction.

From one viewpoint it would be proper to add this amount to the

cost of construction, and if such were done I do not believe that the construction could properly be said to be overloaded. On the other hand, I do not believe that the total executive and administrative expense would have been reduced by this sum if construction work had not been performed along with operation.

I have, therefore, felt that it would be more conservative to use a considerably reduced figure as the cost of administration properly included in cost of construction, and have applied 5 per cent as the cost of this expense to be included in cost of construction. Applying this 5 per cent on the amount of $6,440,266.39, shown as physical construction expenditures on Sheet No. 7, amounts to $322,013.32, which the witness considered to be a fair and reasonable and conservative allowance. This is applied to expenditures for physical construction only. He has not applied this to the expenditures from 1895 to 1899, inclusive, because during that period construction account was charged with a similar expense, amounting to $91,965.21, which was administrative expense and termed "Installation Expense" on the books of the company.

Mr. Sangster allowed this item to remain in the statement of cost of physical property and he thinks it should remain in that account.

Referring to the figures shown on Sheet 63 as administration expenses, the witness said—"I use the term "administration" in a broad sense, including not only executive and administrative expense, but engineering expense and law expense as well, together with other items which are ordinarily classed by engineers as overhead charges and sometimes included in unit costs, such as maintenance of tools and implements, maintenance of structures, injuries and damages, and expenses of automobiles, and stable expenses, and engineering; and includes the salaries and expenses of the general superintendent and his assistants who have done engineering work. They have performed practically all of the engineering work required for the operation and construction of the property of the company; I think the only exception being that the company availed itself of the services itself of consulting engineers in the construction of the Benning Plant. Some companies employ independent engineers for consultation, and some companies maintain a separate department,
961 with separate officers, for the purpose of taking care of construction work; but in our case our executive and administrative organization has taken care of both construction and operation, with an unusually low expense for consulting engineers.

962 Interest During Construction—Ham.

The company has included in its cost of construction and equipment no interest durin*f* construction since the year 1903. There is no doubt that money has been spent for interest, and that an amount should be added to the cost of construction and equipment as recorded in the books of the company, to cover interest during construction. It is, however, difficult to say with fairness what this amount actually is.

One of the things that has inured to the great benefit of the Potomac Electric Power Company is the financial support of the Washington Railway & Electric Company. For instance, the ordinary way of providing money for construction purposes is for a company from time to time, as financial conditions are opportune, to sell enough bonds to supply them with funds to carry on construction for a certain period in the future.

At times this company has done this, selling bonds enough at the beginning of the year to carry it perhaps twelve months or more in the future, but at other times, instead of doing this, they have gone to the Washington Railway & Electric Company and borrowed money as they needed it.

It is impossible to ascertain what is the exact sacrifice of interest chargeable to construction. Sometimes the money has been provided from the sale of bonds, as previously stated; sometimes it has been secured *by* loans from the Washington Railway & Electric Company, and sometimes it has been provided, as at the present time, directly out of reserves and working capital. There is no doubt that the money has been spent for interest and that an amount should be added to correctly state the cost of construction; but I admit my inability to state with exactness what this amount is, but believe that an addition of from 4 to 5 per cent on the amount of actual expenditures for construction from 1904 down to date would be a fair allowance.

I have added for interest during construction 4 per cent to the expenditures for construction for the period from January 1st, 1904, to June 30th, 1916, said expenditures amounting to $6,326,318.69, which makes the allowance for interest on construction during this period amount to $253,052.75.

The rate of interest assumed was 6 per cent with an allowance for the losses of interest due to having to sell your bonds before the time that you will be actually able to use your money, this percentage of 4 per cent would be fair, which involves nine months of idleness for the money, which the witness believes to be a fair allowance for interest during construction.

Asked if he believes interest during construction for work done in piecemeal construction is comparable in connection with wholesale reconstruction, such as outlined by Mr. Pillsbury and Mr. Almert, the witness testified:

I think the two things are entirely separate propositions, and in no way comparable; but I do believe that the administrative expense is greater in piecemeal construction than in accordance with the plan outlined by Mr. Pillsbury. I mean the actual expense, if charged to construction account. I do not mean that the way I have arrived at it in my final finding is greater than it would be in wholesale construction; but to my mind it stands to reason that in building a property in small units, adding on an extension here and a service there and a few poles, it must require more engineering and more supervision than to do the thing on a large scale of reproduction.

Asked if that increase would be enough to offset the saving in interest, he said:

I could not make such a comparison in my own mind. I just feel certain, looking at it reasonably, that the cost of administration must be greater in this method of piecemeal construction, and I know personally that the actual loss of interest sustained in this method of construction would be less than in the wholesale reconstruction method. But that one would offset the other, I am not in position to state.

He has added this interest for construction since 1903 for
963 the reason that prior to that date the construction account had been charged with $147,043.63 interest, which is still included in property account and which, in the witness' opinion, should remain there.

The Potomac Electric Power Company has borrowed large sums of money directly from the Washington Railway & Electric Company and sometimes, through its agency, has been able to secure funds from outside the city. If the Potomac had not had the backing of the Washington Railway & Electric Company, it would have been difficult for it to borrow money required, and then only at much higher costs. It would also have sustained much heavier losses in the way of discount.

The Washington Railway & Electric Company made a loan to the Potomac Electric Power Company some two years ago, when the Potomac Company was unable to get the approval of the P. U. C. for the issue of bonds for construction purposes. Then it borrowed the principal sum of $163,763.28.

964 Tax and Insurance During Construction—Ham.

The company has sustained expense in connection with taxes and insurance during construction, and they are not included in our construction account, with the exception of some minor items of taxes in connection with the purchase of real estate and some insurance on apparatus in transit. I do not know how it is possible to estimate approximately what this amount is.

The practice of the company is not to insure conduits but it does insure buildings and substations during construction, but it might be in those cases that it would be included in the amount paid the contractor. Do not think it was included in the payment to the contractor in the case of the Benning station, because that was built under a different kind of contract; that was built under a cost plus percentage.

Apparatus would be insured during construction. Generally speaking the period would be small.

Then, there is another kind of insurance, fidelity insurance, which, of course, is included right in our operating expenses as a part of our insurance. Of course, that fidelity insurance covers people who are engaged in both operating and construction work. Most items of insurance on apparatus in transit are included in the cost paid the manufacturer.

Could not say positively that the company has ever paid any taxes on uncompleted structures. I think they have, because that is customary here in the District, to have some taxes on uncompleted

structures. I think the taxes usually are very much smaller, though, until the work is finally completed.

Taxes, if any, paid on the Benning Power Plant during construction will appear from the tax records in the District on the land and building both, I suppose, and also taxes on conduits, poles, cables and wires. It would be practically impossible to ascertain just what portion of that tax was on the property which was not actually in use. It was the practice of the company to insure against fire and also wherever possible to have protection against personal injuries during construction in its construction work, and other kinds of insurance like boiler insurance, etc.

Summarizing the amounts to be added to cost of construction as stated in the balance sheet introduced here for the year ended June 30, 1916, the witness testified as follows:

For construction superintendence	$524,807.69
For general administration	322,013.32
For interest during construction	253,041.72
A total of	$1,099,862.73

The first two items aggregate $846,821.01 which, approximately, is 13½ per cent of the construction work performed from 1900 to 1916, inclusive.

Witness considers this percentage fair, reasonable and conservative and he has not added any amount of interest during construction to the amounts paid by the Potomac Electric Power Company as the purchase price of the Potomac Light & Power Company and the United States Electric Lighting Company, because these properties were purchased as completed plants, and any such costs were covered by the purchase price.

Do not mean that they are completed in the sense that it was a fully developed adult organization capable of standing on its own feet.

Although the United States Electric Lighting Company had been doing business for years, and was the only electric lighting company here, and altho its rates had been considered and were fixed by Congress, the witness does not think the development costs up to that time certainly should be eliminated from the cost of construction because they were part of the cost of developing the business up to that time.

Does not think that there ever comes a time when the original costs of development should be excluded from the total cost of investment. He would say that the time of the purchase of the United States Electric Lighting Company in 1902, it had arrived at a stage in the development of the art where it would probably be improper to add on further development costs, but the development costs up to that time should be considered as a part of the investment in the company.

Cannot speak definitely as to what period before 1902 it was improper to add development costs to construction.

965 Does not think it is as far back as 1895. I should say certainly, as to the United States Electric Company, with all of their costs or losses incident to the development of their business up to the time that they had what was a modern plant for those days, around 1897, perhaps, or 1898, should be considered a part of the development cost of the business. The Potomac Electric Power Company at that time had not gotten out of the development period.

Limiting it strictly to consideration of the United States Electric Lighting Company, it might, with fairness, perhaps be said that the period of early development might be considered as ending with the completion of their plant at 14th and B streets, the modern plant.

966 Other Additions to Capital—Ham.

It is proper to add to cost of construction and equipment the difference between the cost of the "I" street property and proceeds when sold. In order to secure a substation in that vicinity, it was necessary for the company to buy several lots of land with buildings erected on a portion of said lots. Then the rear of the lots was utilized for the purpose of building a substation, and later on the company sold off, at a profit, the front of the lots. At the time this sale was made, the entire amount received from the sale of the property was credited to construction account, but in attempting to ascertain the statement of cost of property of the company it seems to me proper to add to the figure, as shown on the books, the profits above referred to, which amounts to $28,488.67, and is so shown by Mr. Sangster on page 543 of his report.

The witness then summarized for the record, the items which he had thus far testified as to cost of construction and equipment as follows:

Account 1—Fixed Capital, Plant and Equipment 12-31-09, Devoted to Operations			$9,355,619.28
Account 2—Expenditures for Plant and Equipment since 12-31-09			2,778,727.73
Account 4—Property abandoned			7,046.46
Account 6—Investments—540 shares Electrical Testing Laboratories stock	$2,700.00		
Two-thirds interest in Great Falls Water Power site	1,000,000.00		
Graceland Cemetery property	116,155.80		
			$1,118,855.80
Account 22—Unamortized Debt, Discount and Expense			201,174.42
Account 24—Other Suspense, Job Work (Work in progress)			9,420.69
Construction Superintendence			524,807.69
General Administration			322,013.32
Interest During Construction			253,052.75
Cost of Potomac Light and Power Company	$278,134.32		
Less amount included in Plant Account of the Potomac Electric Power Company	270,301.09		
			7,833.23
Difference between cost of "I" street property and proceeds when sold			28,488.67
Total			$14,607,039.64

This includes no allowance for taxes and insurance during construction, which should be added.

967 Betterments and Improvements—Ham.

There are betterments and improvements made by the company which should be added to the cost of construction and are not included in any of the items thus far testified to. There has been a constant tendency toward improvements through renewals, which has had a decided effect upon the original cost of existing property, less substantial types of construction being replaced by more substantial and more expensive types of construction.

In ascertaining the cost of construction, consideration should be given to certain betterments and impravements recorded in what are termed "job work accounts." The witness assembled some of these in the form of a summary sheet 62, which shows the total cost of these jobs amounting to $325,212.93, of which $154,249.34 was charged to capital account, and $170,963.59 was charged to operating expense or income accounts. This summary sheet was filed with the record as Ham Exhibit No. 28.

In the same way the items described in Sheet 62, Ham Exhibit No. 38, are as follows:

Item A—General changes of underground direct current cables in 1902.

Item B—Enlarging and extending underground direct current cables.

Item C—Enlarging and extending underground alternating current cable.

Item D—General improvement of the alternating system in 1901-1902, changing from 1,100 volts to 2,300 volts.

Item E—Improvement of street light poles, fixtures, circuits and underground cable involved therewith.

Item F—General reconstruction and improvement of underground conduits.

Item G—Reconstructing and changing underground conduits and cable due to street improvements.

Item H—Betterment and improvement of overhead lines and poles of general distributing system.

Item I—Changes in overhead line and poles general distribution system due to street improvements.

Item J—Reconstructing and improving overhead lines in various public alleys.

Item K—Constructing concrete collar foundations around wood poles.

Item L—Jobs for improvement of power stations.

Item M—Jobs for improvement of substations.

Item N—Miscellaneous.

The form in which this statement is submitted to the Commission does not give them information as to the nature of the items involved,

and for the information of the Commission the witness has prepared a statement which, while not going into detail as to every one of these items, will give a general idea of the character of the work involved. This statement, summarized by items, covers numerous jobs for the betterments and improvements of the general distribution and utilization system and of the power plants and substations. The total cost of all work involved in these items is $325,212.93. There was charged to capital account of the foregoing amount a total of $154,249.34, representing principally the larger items of additional equipment and the increases in the value of cables, wire, etc. by reason of installing the larger size wire or cable in place of smaller sizes.

Operating expenses were charged with $170,963.59. Operating expenses were charges, many instances, with the total cost of certain items of work notwithstanding that the later equipment and construction work was of a greater service capacity *of or* a more modern and improved character.

There is also included in this amount the cost of labor, teams and miscellaneous supplies and expenses in connection with these betterments.

The detailed description of these different items were then copied into the record, pages 4631 to 4651 with great detail not necessary to here state, but extracts from which counsel are at liberty to copy into their briefs with appropriate reference to the record pages under stipulation; after which the witness testified on the theory that the charge to cost of construction and equipment, it would be proper to charge the whole amount of $170,963.59 in the cost of construction.

If betterments are not to be included in cost of construction and equipment, it shows that through maintenance account the actual cost of existing property has been materially increased over the sum carried in the capital accounts of the company.

The character of those betterments *are* covered in detail, but in general I would say they are betterments and improvements that have to be made to take care of the expanding business of the company, and in part to changes ordered by the District of Columbia.

This covers such examinations as we have been able to make
968 of the items included in our job work since the year 1901,
but should not necessarily be taken as a statement of all betterments and improvements of that or a similar nature.

Mr. Syme: In checking up your testimony if it should be necessary could we get the number of some of those from you so as to get a sample of one or two of them?

Mr. Ham: All of the records used in preparing this statement are open to the inspection of the Commission.

Mr. Syme: All right.

Outside of these items that have passed through the job work, there have been spent for betterments and improvements considerable amounts which are charged directly to operating expenses without being passed through our job accounts. Not to cover the whole situation, but in order to place before the Commission certain informa-

tion, I have had an examination made of the maintenance accounts covering a portion of the company's operations and applying only to the underground series arc current cables, underground alternating current cables and underground direct current cables. This study has not included any portion of the overhead lines, nor overhead service wires during the entire period, nor underground service cables since 1909, nor other transactions which involve the replacement of cables or wires; and has prepared a statement showing the amount of cable of different kinds included in the three classifications above referred to, which shows the replacement of certain lengths of cables by replacement of certain other lengths of cable for the period from 1906 to 1916. This is shown on Sheets 58, 59 and 60 which were offered in evidence as Ham Exhibit 39.

Witness would not attempt to *attempt to* translate these feet into money. It is the purpose of this exhibit to inform the Commission of the fact that these improvements have been going on through operating expenses, without any attempt to reduce the amount to a specific figure.

The first column on these sheets shows the amount of cable and the character of cable installed in place of other cable removed. The total of such cables, expressed in feet, is 145,875 feet.

The column on the right hand side of this sheet shows the type and quantity of cable pulled out. The total, expressed in feet, is 135,322 feet.

Such inquiry or investigation shows that the cable which has been pulled in or installed is of a more expensive type than that which has been replaced. Generally speaking it covers the installation of leaded cable in place of non-leaded cable, although there are some instances of leaded cable of larger size being installed in place of leaded cable of smaller size. When this old cable was pulled out of the ducts and this new cable put in, the new cable was charged to operating expense and credited the old to operating expenses at either its estimated or scrap value, as the case might be. He did not charge the new cable to operating expenses and credit the old cable to plant account.

There was no effort to conceal anything. When they taxed our property they did not look into our property account. I have never heard of anything of that kind being done. As a matter of fact, I do not know how the Assessor's office arrives at the assessment on our cables. It may be through some statement that we furnish, but I don't know.

It is our position that in an inquiry to ascertain the cost of construction and equipment consideration should be given to those things and I think the Commission should take this matter under consideration, and it was with that in mind that he called this to the attention of the Commission.

Cable replacement reflects real betterment but does not reflect on the plant account shown on the company's books.

In addition to this, there has been a constant improvement in all of the company's distribution plant. I cannot begin to cover all of the items of this character, but have particularly in mind certain of

them to which I think it proper that the attention of the Commission should be drawn.

The replacement of tape joints on underground cables with leaded joints, bonding, tagging and racking of cables, other than on new installation, all of which has been charged to expense account, installation of a third wire for existing house services and enlarging existing services. A great many oil switches and fuse boxes have, from time to time, been installed on the alternating current system, and charged to operating expenses. Poles have been replaced with more expensive poles of larger diameter and greater height through operating expenses.

969 Lightning arresters have been installed and charged to operating expenses.

On that one item alone we can make a fairly close approximation of the amount involved, and we find that it runs up to $11,354.48. Cross-arms have been improved by the replacement of 6-foot 6-pin cross-arms with 8-foot 6-pin cross-arms. Additional guy wires and cattle guards have been installed under maintenance accounts. Transformers have been grounded and charged to maintenance account. Improvements have been made in reflectors. We find one item of 233 radial wave reflectors in street lighting overhead system of the old style that have been replaced and charged to operating expense account. One large item, the entire cost of installing meters has been included in operating expenses. Our estimate of this cost is $1.25 per meter, a total of 31,159 meters or a total of $38,013.98.

In our operating account known as "Miscellaneous Distribution Employes' Account 53," we have included in operating expenses the entire time of some seven employes whose time is very largely occupied in laying out new work, inspecting work and locating services to the premises.

None of these are recorded in our property account, and it should be considered by the Commission in arriving at the cost of construction and equipment.

These items that I have mentioned are incomplete, and I know from my experience with the affairs of the company they do not cover all of the work that has been done by the company in the way of improving its property. * * * and also many other similar betterments extending over a period of many years which we are not now able to state with exactness; and it is his judgment that the purpose of this inquiry is to arrive at the cost of construction and equipment, irrespective of how the cost of such construction may have been entered in the books of the company.

970 Policy of the Company—Ham.

The policy of the company has been constantly to make charges to its property account on the most conservative basis. As a result thereof, these things which I have mentioned, among others, under a fair interpretation should be considered if the inquiry is to ascertain the cost of construction and equipment. I do not mean by this that I think the company was wrong in charging any of these items

to operation, but, on the contrary, I think it is an instance where the conservatism of the company is shown; that its aim has been to conserve its capital investment, and to maintain its property in a high state of efficiency.

The Commission should carefully consider the conservatism of the company in its charges to plant account.

In his opinion and from his experience with the accounts and finances of the company, the property of the company has been maintained in its integrity and in a high state of efficiency.

The witness stated he was not able to state any final figure as representing the cost of construction and equipment as of the present time. As already stated, the total cost of construction and equipment on June 30, 1916, was $14,607,039.64, and he feels no hesitancy in stating that that figure represents the cost of construction and equipment to the extent named. In addition to this, certain other items should be considered by the Commission in arriving at the cost of construction and equipment, and an allowance made therefor.

Paragraph 6, as he understands it, requires the Commission to ascertain the historical cost of construction and equipment, and that should be ascertained, however recorded in the books of the company.

The cost of construction and equipment, in his opinion, including construction, superintendence, administration and interest during construction, is $14,607,039.64.

He was unable to ascertain the amount that should be included for taxes and insurance during construction.

There should also be taken into consideration in arriving at the cost of construction increases in costs on account of renewals.

Additions and improvements have not been included in the account and should be taken into consideration.

In view of the facts as he has testified to them, he hesitates to estimate the amount which should be allowed therefor.

He has not included any deficits of the Potomac Electric Power Company or any of the cost of attaching business.

Since 1896, the company has expended for canvassing and soliciting $295,933.97, as shown from the statements of operating expenses heretofore filed as exhibits.

971 Working Capital—Ham.

Witness stated that he had prepared a statement from the books of the company showing the average working capital covering a period of 5 years; the dates selected being December 31, 1912, December 31, 1913, June 30, 1914, June 30, 1915, and June 30, 1916, which he introduced as Sheet No. 13 and was marked as Ham Exhibit No. 40, which he explained as follows:

Materials and supplies, including fuel, $132,1-4.12; cash, other than special deposits, $226,749.71; bills receivable, consumers' only, $7,809.21; accounts receivable, consumers' only, excluding balances with Washington Railway & Electric Company and subsidiary companies, $248,261.91; advances, District of Columbia, and working funds, $13,921.03; insurance premiums paid in advance, $10,-

537.51; other suspense, work in progress and items in suspense, $1,923.53; total, $641,307.02, less following deductions:

Audited vouchers and wages unpaid, $87,313.57; other working liabilities, excluding matured interest on funded debt, offset by corresponding debits in Coupon Special Deposits, and excluding balance with Washington Railway & Electric Company and subsidiary companies, $2,719.07; taxes accrued, $21,626.52; interest accrued, $10,522.50; total deductions, $122,181.66; average actual working capital for 5-year period, $519,125.36.

In regard to consumers' deposits not being shown as a deduction, these consumers' deposits are interest-bearing deposits. If interest on c-*umsers*' deposits is to be allowed as an item of expense before figuring net return upon investment, it would be proper to include consumers' deposits as a deduction from working capital. Otherwise, the statement as prepared is in proper form.

The average of consumers' deposits for the 5-year period is $77,349.82.

Consumers' deposits are constantly increasing with the growth of the business and there is nothing to prevent the company from investing the consumers' deposits. If they are invested, they certainly cannot be working capital.

I do not think that the company has maintained an unreasonably large working capital. In addition to the amount tied up in materials and supplies and receivables, it has had to have on hand a sufficient cash balance to pay its bills promptly, to avail itself of discounts, to provide for unexpected contingencies, in order to prevent interruption to the conduct of its business, and the company must maintain a balance which, relative to the size of the business involved, will properly maintain its credit.

It must also be borne in mind that this company finds it necessary in the promotion of its business to sell on the installment plan many electrical devices, such as irons, vacuum cleaners, ranges, and so forth, which means the tying up of considerable sums in receivables.

This company has also found it convenient for its customers to maintain numerous collection agencies for the payment of its bills for electric light and power, and has found that savings banks and other financial institutions located at different points throughout the city are willing to perform this service without other expense to the company than maintaining with them reasonably satisfactory balances. This tends to increase the cash requirements of the company, as a material part of the cash balance is regularly on deposit with the institutions above described.

He could not say, without looking up, why on June 30th, 1914, they carried cash $113,080.03, and on June 30, 1915, $559,194.09; but this statement is a statement not of why we had to have the money, but a statement of what we did have. This amount as here shown in the last column on Sheet 13 is a statement of the average amount of working capital that the company has had during this 5-year period—$519,125.36.

972 I have included an average cash balance of $226,749.71. The balance on June 30, 1915, was considerably above the average, and that on June 30, 1916, was also somewhat above the average. The $226,000 average is $113,000 more than it was carried in the preceding years, 1912, 1913 and 1914.

It is fairly representative of the amount of capital actually needed for its operations during that period. As it happened, its operations were four times as great and its necessities for working capital four times as great on June 30, 1915, than on June 30, 1914. It is one of the most fortunate things that could have happened for the company that it did have this working capital. Otherwise, I think the progress of the business would have been seriously interfered with. We had to take our reserves and working capital for extensions. That is not the reason we had it in bank, but it was there.

You must also include an amount to provide for extensions and additions to plant and equipment until such time as it is practicable to reimburse the treasury through issues of additional securities. If securities are issued and sold in anticipation of expenditures of this character, then allowance would have to be made for the loss of interest on such securities up to the time when the extensions are made. All issues of additional securities of this company now have to be submitted to the Public Utilities Commission for approval; and then, under normal conditions, there would be quite a considerable time before the issue of securities could be approved and their sale consummated.

Referring to Mr. Pillsbury's testimony, the witness stated he did not think that the matter of working capital is an engineering problem in any sense. It is a financial problem. That amount that he arrives at is manifestly inadequate. He makes no provision for the amount of money that the company has tied up in these accounts with customers, working funds, and other items paid in advance. I do not think that working capital is an accounting proposition, either. It is a financial matter.

As I gather from Mr. Sangster's report and his testimony, he is confusing the subject of allowance for working capital with the sources from which the working capital is derived. The necessity for working capital has nothing to do with the sources from which it may be secured. To illustrate this point, we will assume a commercial business that has a fixed capital of $100,000. It needs working capital of $50,000 to carry its customers. It goes to the bank and borrows that $50,000. Then, as profits accumulate, instead of paying the profits out in the form of dividends or profits to its owners, it pays off its loans. However the money has been derived, the fact remains that the company was confronted with the necessity of having $50,000 of working capital.

The Potomac Electric Power Company extends credits; that is a part of its business, to extend credits to its customers. It has to await collections from large consumers, small consumers, and from government agencies. It sells electric appliances and does considerable work for the account of customers in the way of extensions and miscellaneous work.

In Mr. Sangster's report of working capital for the Washington Railway & Electric Company, outside of materials and supplies, he allowed $315,000. His allowance to the Potomac Electric Power Company for working capital, outside of materials and supplies, is $90,000. This cannot account for any such wide discrepancy, in view of the volume of business performed by the two companies, and as I see the situation there can be no comparison between the requirements of working capital by any street railroad and an electric lighting company. A street railroad is collecting its money through earnings daily, whereas a lighting company, as best, has to carry its customers for a period of anywhere from forty to fifty days, and has a great deal more necessity for working capital than a street railroad.

(This completed the cross-examination of this witness, which was deferred pending the examination of other witnesses, and the cross-examination of this witness was resumed on December 23, 1916.)

973 Before the cross-examination was commenced, the witness introduced a statement, Sheet No. 77, entitled "Potomac Electric Power Company Return on Cost of Construction and Equipment Per Books" and was marked Ham Exhibit No. 41, which he testified he had prepared and that he accepted responsibility for the accuracy of the statement, which, he states, shows the additions to construction account by years; shows the net income by years; the percentage of return by years; and the average annual rate of return on the cost of construction and equipment per books; and that this average annual rate of the Potomac Electric Power Company for the period from October 1st, 1896, to June 30th, 1916, was 6.86 per cent.

He also produced and identified and testified as to the accuracy of certain other statements shown on Sheets 78 and 79, entitled "Potomac Electric Power Company Return on Construction and Equipment Adjusted," which he described as follows:

During the course of my testimony I testified as to certain overhead charges covering superintendence, administration and interest during construction, which, in his opinion, should be included in the cost of construction and equipment, and also testified as to two other miscellaneous items which should be likewise included. The inclusion of these items in the construction account would mean a corresponding increase in income account as stated on the books of the company, and the purpose of this statement is to show the adjusted cost of construction and equipment, and also for the entire period from October 1st, 1896, to June 30, 1916, and shows an average annual rate of return of 7.07 per cent on cost of construction and equipment.

These statements were identified and introduced in evidence as Exhibit Ham No. 42 and made a part of the record.

He also introduced and identified and testified as to the accuracy of Sheet No. 81, showing the United States Electric Lighting Company return on cost of construction and equipment per books, which he explained as follows:

"This shows the construction account at the close of each year,

the net income, the percentage of return and average investment on which to calculate annual rate of return and the average annual rate of return during the period from 1882 to September 30, 1902, said average annual rate of return being 5.86 per cent," and was introduced in evidence as Ham Exhibit No. 43.

He also produced and identified and testified as to the accuracy a statement entitled Sheet No. 80, headed, "United States Electric Lighting Company Return on Cost of Construction and Equipment Adjusted;" that he had testified as to certain additions that should be made to the cost of construction and equipment account of the United States Electric Lighting Company as recorded on the books of said company, said items consisting of arbitrary depreciation charges and other additions charged against profit and loss. The inclusion of these items in cost of construction and equipment would necessarily increase the net income by a similar amount, and this statement has been prepared to show the result of such adjustments. This statement shows the adjusted net income, the adjusted per cent of return and the adjusted average annual rate of return during the period from 1882 to September 30, 1902, said average annual rate of return being 8.14 per cent.

In his testimony, and particularly in a note shown on Sheet 6, he made the statement that cost of plant, as shown on the books of the United States Electric Lighting Company on September 30, 1902, should be increased as follows:

974

Cost of plant	$2,081,959.75
Construction for year 1901 charged to profit and loss.	278,908.26
Reconstruction account charged to profit and loss in 1900	47,494.72
Arbitrary Charge against plant account for depreciation	330,635.97
A total of	$2,738,998.70

The purpose of the exhibit introduced and known as Sheet No. 80 is to show the effect both upon the construction accounts and upon income accounts of those adjustments.

This statement was prepared from the books of the company and under his direction and was introduced in evidence and marked Ham Exhibit No. 44.

975 Cross-examination by Mr. Syme as follows, beginning on page 5235:

He investigated the history of the Potomac Electric Power Company as well as he could in the time at his disposal. No doubt he has omitted many things but nothing that he knows of that should be considered.

He referred in his testimony that the stock of this company was at one time owned by the Washington Traction & Electric Company. He knows that prior to 1902, the parties who had acquired all the stock of the Potomac Electric Power Company and the United States

Electric Lighting Company, formed a holding company over in Virginia and transferred all of those stocks to it, and that the name of that holding company was the Washington Traction and Electric Company; that it was organized about June 1st, 1899. Thinks the United States Mortgage & Trust Company of New York, and associated interests were active in connection with local people, particularly Mr. Crosby, Mr. Lieb, Mr. Stevens, and he thinks Colonel Truesdell, and there were some Philadelphia interests in it, too. They held the stock of those several companies and some of the bonds.

This company finally became in such a condition that a foreclosure had to take place under a certain mortgage which had been given to secure its bonds, and that foreclosure took place in the United States Circuit Court for the Eastern District of Virginia at Norfolk.

He recalled that a bill was filed to foreclose under the terms of the mortgage and that a decree of foreclosure was entered and that was while he was connected with the company.

He remembers that the property was bought in at a public sale in Norfolk but does not remember just what the sum was.

He knows it was during the year 1900 the Washington Traction & Electric Company defaulted interest on its bonds, and in that spring the Enabling Act of the Washington Railway & Electric Company was passed by Congress. From that time on the interests involved were busy in getting up some reorganization; plans were matured for that reorganization, and as an incidental step or as a necessary step the property of the Washington Traction & Electric Company was sold at foreclosure proceedings at some amount.

He has met Mr. Samuel B. Lawrence. Does not know who he is except that he came from New York or around New York. "I don't know what his connection is with the Mortgage Company now."

The property was bought in by Brainard Towles at the foreclosure sale and is substantially the same property which was transferred to the Washington & Great Falls Electric Railway Company, which is now the Washington Railway & Electric Company, by Samuel B. Lawrence in consideration of the issue to him of the total capital stock of the Washington Railway & Electric Company.

Counsel for Commission desired inserted in the record as an appendix a copy of the bill of complaint filed in the United States Circuit for the Eastern District of Virginia for the United States Mortgage & Trust Company against the Washington Traction & Electric Company, and the supplemental bill filed, and the decrees entered by Judge Goff in that case, all of which will be found on pages 205 to 213 of the hearing before the Committee on the District of Columbia in the House of Representatives, document H. R. 14896 on April 16, 1914, and a copy will be inserted in the appendix of this day's proceedings.

The witness thinks that 10,678 shares of the United States Electric Lighting Company were acquired by the Washington Railway and Electric Company and not 10,976 shares. Thinks there was a subsequent purchase to make up the difference.

The contract there referred to may be found in the record. Both

parties are at liberty to make any reference they may wish to extracts therefrom required—pages 5244-5253.

976 The result was that the Washington & Great Falls Railway Company, now the Washington Railway & Electric Company, held in common ownership almost all of the stock of the United States Electric Lighting Company and all of the stock of the Potomac Electric Power Company. Under these conditions, he called them competing companies. They might at any time become competitors.

There has been no change in the stock ownership of the United States Electric Lighting Company and the Potomac Electric Power Company from 1902 to the present time.

In 1902, the Washington Railway & Electric Company owned the stock of the Potomac Electric Power Company and a large part of the stock of the United States Electric Lighting Company. In the fall of 1902, the United States Electric Lighting Company went out of existence through the purchase of its property, rights and franchises by the Potomac Electric Power Company, the Washington Railway & Electric Company continuing to own the stock of the Potomac Electric Power Company.

There was no change of stock ownership and there was no actual condition of competition.

Does not think that when the two companies were absorbed that all of this basis for increased capitalization based on the elimination of competition is simply a figment of the imagination. There could have been competition established at any time by the common owner disposing of either one of the properties. There was a proposition at one time to sell the United States Electric Lighting Company to outside people but it was never consum-ated. Cannot remember the exact date but the witness recalls the president of the company and himself discussing the matter after 1899. The company was put together 8 or 9 months after the transfer from Laurence to the Washington & Great Falls Railway Company.

He assumes that the absolute custody of the stock was in the hands of the purchasers at this time. The Washington Traction & Electric Company was the equitable owner.

Mr. Towles, or who ever acted as purchaser of that property, was simply acting as agent for consummating this plan of reorganization. I know that was a part of the plan of reorganization, that they buy it in at foreclosure. I think it is a bona fide sale in law with the distinct purpose of carrying out a plan of reorganization. We are all accustomed to doing it. There is nothing extraordinary about it. We know that the plan of reorganization is consummated and then they go before a court and have the order approved usually in a sort of routine fashion.

The proceeding at Norfolk was a bona fide proceeding. It was no more fixed up in advance than is customary in plans of reorganization. In all of these plans of reorganization the court is consulted as to the steps that will be taken to bring about the reorganization.

I don't think the defaulting on the bonds is any part of a precon-

ceived plan. I think that usually follows without being a part of the reorganization plan, but after you have defaulted it is customary for the people in interest to get together and decide on some plan of reorganization, and it is something which is nowadays brought to the attention of regulatory bodies. In these days the reorganizations have to be submitted to the approval of a commission before they can be consummated, and I would think necessarily the court must be consulted as to the nature of the reorganization.

The present Washington Railway & Electric Company was the Washington & Great Falls Railway at that time. You have to look at the whole thing in view of the legislation which was passed in 1900. At that time the Washington Traction & Electric Company was the owner of all of these securities, and Congress passed this legislation to permit that common ownership to continue, and the means that Congress adopted was to pass the Enabling Act authorizing the Washington Railway & Electric Company to issue $15,000,000 of stock and the necessary bonds. This whole thing is a part
977 and parcel of that one thing authorized by Congress, and these different steps that you have spoken of were simply the incidental steps that were necessary in order to consummate the things which were contemplated by that legislation.

I was here at the time and just absorbed it gradually.

There was no fraud or irregular practice involved in the method which he adopted as comptroller for years, and up to the time of this hearing, charging certain items to operating account.

I do not think there has been any impropriety either in our bookkeeping or in our reports to Congress. I do think that in a study being made by the Public Utilities Commission the cost of construction and equipment it would be improper for us not to call their attention to these facts that I have called their attention to.

This classification apparently contemplates that there shall be no writing off or changing of that cost.

When the bill of sale was made for the United States Electric Lighting Company it was signed by Stilson Hutchins and the others individually, and that would indicate that there was no incorporation, although not necessarily.

The location at the corner of 10th and D streets at the time of this company was in the old Washington Post Building. I know Stilson Hutchins was connected with the Washington Post, but I don't know about the building. Have no idea as to how much of the plant they had; must have been comparatively small plant; do not know what franchise they own. They were actually operating.

They sold all they had, which included the property, business, franchises, good will and whatever there was, and that $100,000 was apparently the nucleus of the United States Electric Lighting Company.

Stilson Hutchins was one of the incorporators; don't know what proportion of the stock he owned.

From 1884 it became a pioneer of underground construction and

laid underground conduits along Pennsylvania avenue and other streets, and was a model system.

Witness does not know the price paid by the United States Electric Lighting Company to the State of West Virginia for its franchise.

Witness does not know what it cost the United States Electric Lighting Company in effort and energy and time to obtain its franchise from the District of Columbia just as a matter of dollars and cents. I presume it was nominal, probably just the payment of the permit fees or something like that. That is a very small part of the real cost of getting anything of that kind if you count the energy and effort that you put into it.

The Brush-Swan Electric Company had a plant. Cannot tell just where it was located; did not know how many customers it had. From what I know of the history of the company it was engaged in a kind of lighting that I have a faint recollection of seeing, where they illuminated the streets and public place- by these very large lights erected high up in the air. They did not blind me when I saw them in Cleveland, I think it was. I simply know that was one of the experiments that was made in the development of the industry, this lighting at high places.

I think they had other rights. Unfortunately the history, of that company is very much lost to us now so that we cannot tell just exactly what they were doing, but we believe that they were the licensees of manufacturers of electrical apparatus. I do not recall how much was paid to them. That is one of the things we have not been able to ascertain. There is something in the minute books about it, but we don't find the record on the general books; cannot find record of the purchase at all in the record boo*ds*; witness not with the company at that time.

978 The United States Electric Lighting Company of New York controlled the use of different kinds of apparatus throughout the United States. As nearly as I can tell, they were not manufacturers, but they had obtained the general rights for this patented apparatus all over the United States, and the operator in a given locality had to get his local rights from this party who controlled the general rights, and they generally did that by taking a portion of the stock of the local company and then giving it back special discounts in the purchase of its apparatus.

While I am not clear and do not know it as a matter of fact, they furnished us this apparatus at special discounts * * *. The contract by which they were to have 25 per cent additional of stock was abrogated.

Is not clear that they ever gave the stock back. It looks as if some of the stock came back; that either the whole or a portion of that stock came back and was used in the purchase of the Brush-Swan Company. Otherwise, I do not see how the company got the Brush-Swan, because it is not recorded on the books of the company itself.

Whatever rights Wilder might have bought from the Potomac Light & Power Company were transferred by the executors of his will to Crosby and Lieb.

Crosby and Lieb transferred all of the electrical franchises and property controlled by them to the Potomac Light and Power Company, and received all but three shares of its capital stock, January 20, 1896. Then on April 20, 1896, Crosby, Lieb and Stevens incorporated the Potomac Electric Power Company of the District of Columbia. The transaction by which this was done appears from the cash transaction on the books as a money transaction. The books of the company, I think, show that the cash came in from the sale of the stock and was used for the payment of the notes.

It is not true that the only actual physical property that was transferred to the books of the Potomac Electric Power Company amounted to about $60,000 all told. It reads "original plant and franchises."

Certain credits were made to this account, and corresponding charges to other plant accounts. They amounted to $46,000, consisting of certain enumerated items, but that $46,000 worth of property allocated to specific accounts was transferred to the books of the company as the result of this transfer of property.

My meaning to my response on page 4560 is that there is no place on the books of the Potomac Electric Power Company where there is recorded the physical property purchased, either in detail or by groups of accounts. This $46,000, as I have already testified, apparently covers a portion of the physical property purchased. I make the statement because I know there was other physical property. I know there was this plant at Georgetown, which is not included here at all.

I come to about the same conclusions that Mr. Sangster did, that with the exception of this real estate of $17,000, all these items affect the Eckington purchase. When I said "Georgetown plant" I mean the Little Falls, Chain Bridge Plant.

This Chain Bridge plant I speak of is not the item of $17,000. That is the Dent property over in Georgetown. They have no connection one with the other.

In the second place, what apparatus sells for at a forced sale, or what anything goes for at a bankrupt sale is no indication, necessarily, of its value and certainly not of its cost.

It is not a reasonable inference that, if there was any other property that could be charged against other specific accounts, that that would have been done. The inference that I draw is that, with the exception of this real estate and building at 33rd and K streets, the balance they have set up there is the Eckington purchase, leaving the entire property of the Potomac Electric Power Company outside of the Eckington and its predecessors remaining in the original ac-
979 count of franchises and plant. I do not think that they did put in the Eckington plant with the Georgetown plant. As to that $17,000, I think that is specific and had nothing to do with the prior construction of the Potomac Light & Power Company.

Chairman Kutz: What other item of physical property than the Chain Bridge plant do you think was included in the transfer at $255,000 and not included in the $46,000?

Mr. Ham: All of their lines, poles and construction in Georgetown. I do not think that that was included in these items at all.

Mr. Syme: Mr. Ham, on April 8, 1896, there was a hearing held before the Subcommittee of the United States Senate on Senate Bill 2124, a bill to authorize extension of the lines of the Potomac Light & Power Company.

In that hearing this statement was made by Mr. Redington, counsel for the United States Electric Lighting Company. After speaking of the sale of this Chain Bridge property of the Potomac Company for $3,000 to Wilder, Mr. Redington says as follows:

"Soon afterwards Mr. Wilder incorporated the Potomac Light & Power Company. The organization of this company, however, was never completed."

Is that true, as far as your investigation of these records is concerned, that the organization of the company was never completed?

* * * * * * *

Mr. Ham: According to my understanding of the records, this company was actually incorporated and received permits from the District of Columbia to erect poles and string wires from the Chain Bridge to Georgetown, and also in certain streets in and near Georgetown.

Mr. Syme: This witness before the Committee continues:

"Wilder died, and the property became part of his unsettled estate. Time and time again we were offered that plant for $4,700. We did not want it; did not think it worth $4,700 to anybody, and we declined to buy. That is the thing, gentlemen, which Mr. Crosby bought in the summer of 1895 and for which he claimed he paid 'to exceed $4,700.'"

Do you know whether that statement is correct or not, from any of your researches?

Mr. Ham: I do not.

Mr. Syme: Do you know whether this statement is correct, from the same hearing, on page 23, concerning the Eckington property?

"Mr. Truesdell soon found that that was not a paying investment; so he came to the United States Company, and for years attempted to sell that plant to them for $25,000. He admitted and showed by his books that he had lost $15,000, but demanded of us $25,000. We were in no need of any such plant. It was not located where it could be operated at a profit, and there was no good reason for our buying it. So we refused to pay $25,000 for it. Within three or four days after our last refusal to buy that plant Mr. Crosby claims to have either bought it or to have made a contract with Mr. Truesdell."

Do you know anything about the truth of that statement?

980 Mr. Ham: I am very glad you have read it, because that is a confirmation of the inferences I have drawn with regard to this $46,000. That $46,000 consists of $17,000 for building and real estate, which leaves a balance of $29,000, which I assumed was in connection with the Eckington plant. The figure you read is $25,000, and it looks very much as if my inferences were correct.

* * * * * * *

I have it from Col. Truesdell that the Eckington plant costs about $30,000.

Witness does not know what it was sold for.

Counsel on both sides agree that the report described as "United States Senate, Committee on the District of Columbia, Electric Light & Power, Hearing on the Bill (Senate 2124) to authorize extension of the lines of the Potomac Light & Power Company," referred to by Mr. Syme, will be understood as in the record for all intents and purposes as though copied at length, but not to be set out.

Witness further testified that the books show the purchase of the original plant and franchises, including physical property, in a lump sum of $255,000.

$255,000 included something for franchises, because it covered all they had.

At the time of the formation of the Washington Electric & Traction Company, when this joint ownership took place at the close of 1899, the book cost of the United States Electric Lighting Company stood at $1,956,014.78; that was what was shown on the books as being the cost of the plant. When the Potomac Electric Power Company took this property into its own name, it paid for it $3,250,000 in stock.

At this time, the cost of the Potomac Electric Power Company, as stated on its books, December 31, 1899, was $1,651,711.06. The detail of that is fully set out in one of the exhibits already introduced—Sheet 40 which should be read in connection with Sheet 41, and some further details shown on Sheet 42.

In that is included interest and discount, $14,543.63; legal expenses, $8,492.90; commission on bonds, $109,750; extraordinary expenses, which include payment for conceiver's and promoter's services, $550,000, as well as other services; installation expense of $90,923.54; which total up $773,710.07; that does not include the balance, $207,944.69, of the original plant and franchises. The sum of these items is $981,655.39.

If I subtract $981,655.39 from $1,651,711.06, the difference is $670,055.67. That is not fairly comparable, then, with the cost of the property of the United States Electric Lighting Company as of the same date, because you have eliminated a lot of items of physical property.

The $270,301.09, which was the original cost of the Potomac Electric Light & Power Company, including the physical property which you have excluded by using this figure of $207,944.69.

Mr. Syme: I am speaking now from your books; the actual physical property which your books show was charged to particular accounts.

Mr. Ham: Well, I decline to testify that those figures represent the cost of the physical property of the company or that the books show that fact, because, in my judgment, that is not a true statement of the facts.

Mr. Syme. The only item that you and I really have any dispute about would be the $270,000 item; would it not?

Mr. Ham: Yes.

981 Mr. Syme: Of which we do not know how much of that represents franchises or intangibles and how much represents physical property?

Mr. Ham: Yes. I think I know what you are getting at. I would say that if you add the items shown on Sheet 41, which amount to $773,710.07, to the original purchase of the Potomac Light & Power Company, amounting to $270,301.09, and subtract that sum from the total cost of construction and equipment December 31, 1909, amounting to $1,651,711.06, the difference would represent the expenditures for physical property during those four years.

* * * * * * *

What you are trying to get me to say, with all due respect, is that this $47,000 you refer to represents all the physical property that the Potomac Electric Power Company acquired from the Potomac Light & Power Company.

* * * * * * *

The books, as I have stated over and over again, do not show the amount of physical property that was purchased from the Potomac Light & Power Company.

All the light we have on this subject, so far as the Potomac Light & Power Company and the United States Electric Lighting Power Company, are concerned, is what the books show. * * * If you will correctly interpret what the books do show, we will have no difficulty. * * * The books do not show that $46,000 is the cost of physical property.

From 1899 until the actual merger of these two companies in September, 1902, I would assume that they were not competing and we have, in effect, as of the latter date, a merger, and that merger was consummated by issuing $3,250,000, about, of the stock of the very much smaller of the two companies for the property of the other, and the merger was for the purpose of having a single operation of the two companies by a single company.

It did make a difference in the ultimate purposes of this which company bought the other. The United States Electric Lighting Company was about to go out of existence, or its charter was about to expire, and it was out of the question for the United States Electric Lighting Company to bring about the merger. The Potomac Electric Power Company did have, under existing law, the authority to buy the property rights and franchises of the United States Electric Lighting Company.

The latter's charter might have been extended for another 20 years by mere application to the State of West Virginia, but the company did not look upon it as desirable for foreign corporations to be operating in the District of Columbia.

Mr. Syme: What I want to get at is by what theory, when you merge the properties of these two companies into one company, in

order to get a unit of control and operation, you can increase, by calling it a sale, the stock of one company by two or three million dollars.

Mr. Ham: On the theory that you pay for it what it is worth. You increase the plant account of the Potomac Electric Power Company by the value of the United States Electric Lighting Company property rights and franchises. I should say the directors of the Potomac Company fixed the value of the property rights and franchises of the United States Electric Lighting Company when it was transferred to the Potomac Electric Power Company. I do not know that the directors of both companies were the same but for your purposes I think it would be safe to say they were about the same. The Potomac Electric Power Company thought it was a judicious purchase at the price they paid for it. It was owned by the Washington Railway & Electric Company. It has a separate existence that Congress enforces upon us. As a *am*tter of fact, it was not purchasing something from itself. I do not look at it as a legal fiction. I think the Potomac Electric Power Company, being a separate proposition from the Washington Railway & Electric Company and required by law to be a separate proposition, required to finance itself separately from the Washington Railway & Electric Company and to have separate issues of stock and bonds, bought the United States Electric Lighting Company at a fair price and paid for it with its stock, among other things. I do not, I
982 cannot say anything more than that in this purchase of the United States Electric Lighting Company the Potomac paid what it thought was a fair price for the property that it bought.

Substantially the same board of directors were controlling the Potomac Company that were directing the Washington Railway Company and the United States Company.

No person not in interest made any appraisal of the property of the company which was to be bought to the knowledge of the witness; nor was any outside party called into determine the fair price.

I think it is safe to say that the two boards of directors agreed upon this agreement of purchase or sale.

In a purchase of this kind, whether made by separate interests or companies like this, where there was a common ownership, I think the customary way then and now is to just look at the proposition as a whole, taking into consideration to some extent the amount of physical property they have, taking into account the business they are doing, what the prospect for future business is, whether the field is developed, and, of course, what their franchises and rights are under the law, which would necessarily mean a consideration of any easements that they were occupying.

I do not know that they valued them at anything like $2,500,000. I do not think any value has been put on any of these things individually. They were looked upon as a whole. I think all values were included.

We had contracts with the public, for one thing; with the people who were buying current. We had an established business. We had licensee agreements, royalty arrangements. It was simply all

the things which go with a going concern. The interests that owned the stock of these two companies had no monopoly of the supply of electric energy. No electric company ever has a monopoly because we are in competition with the public all the time. At that time we were doing all the street lighting; but that is not what I call a monopoly, because to monopolize means to continue to have the right. I think they were more interested in seeing that there was a merger than anything else. There were a great many operating plants at that time, which have been done away with. In saying that we are in competition all the time with the public, there are a lot of people in Washington which we do not have as customers now. We do not have Woodward and Lathrop and certain other stores. Every time there is a building put up, there is a question whether we will get the lighting or the owner will do his own lighting. As I say, we are now in competition with the Government also.

My idea of a monopoly would be one which would have the exclusive right, either at the time or for the future, as well; but when a monopoly is necessarily competing with other operators, independent operators, why, it takes away a part of the feature of the monopoly—just the same as we have no monopoly of the lighting of the city, even if we have a monopoly of the electric lighting, because we are always in competition with the gas company; and, as I have stated, we have been and are in competition with private operators.

It seems to me in order to clear the record, that we have been the only electric light and power company operating within the District of Columbia, selling power since 1902.

Ham's Exhibits 4, 11, 12, 14, and 15 were introduced.

The original purchase of the laboratory stock mentioned on page 4568 was made by the United States Electric Lighting Company.

Ninety shares were received from the United States Electric Lighting Company at a cost of $450, and the balance of the stock has been received in the form of stock dividends, but as received a
983 similar amount was credited to the income account, the entry being to charge investments and credit income with the amount of the stock dividend.

It is the theory of the company that by charging this stock to construction account it should receive an additional per cent from the consumers, when you take into consideration as an offset the earnings which we get from the stock.

If you wish to disregard the investment, and also to disregard the income from the investment, it would not make any difference, but if you are going to include the income as a part of the return of the company which, of course, it is to divide up as earnings from any other source, then you want to put the investment in on the other side.

Suppose the Commission determined upon a 9 per cent return on our investment, and we are getting 10 per cent upon this return anyway, then the public is benefitting by that difference.

The dividends received have been entered up as income and the company has applied that income to the purchase of this stock. He really considers these 450 shares as being property in lieu of a testing laboratory which we would have to have ourselves.

984 Great Falls Property—Ham.

We get no income from the Great Falls power site. That is simply put into the cost of property because it represents property purchased for future operations.

985 Betterments and Improvements—Ham.

From an accounting standpoint, a replacement is a substitution in kind. A betterment is a substitution in which the result of the transaction is to have a more valuable piece of property.

Generally speaking, a betterment is that which adds to the value of the property through a replacement or substitution.

Some betterments have been entered in the plant account. I would say that, generally speaking, no replacement in a narrow sense, has been placed in the plant account. Many betterments, however, have been placed in the plant account.

The two things intermingle. A replacement is supposed to be a substitution of something new for that which is worn out. A repair is the fixing up of something that is still in place, but there is no strict line of demarcation between the two because of the fact that you could not always apply it to small enough units. For instance, we speak of repairing a joint in a track, but that includes the replacement of certain parts, perhaps bolts or nuts and sometimes even the joint plates themselves, but still we would speak of that as a repair rather than a replacement.

Ordinarily they go right into the repair account or the maintenance account, unless there is a distinct improvement you would put the whole expense into the maintenance account. If you have a general betterment due to the substitution of heavier and more expensive joints for lighter and less expensive joints, that part of the increased cost could be charged to the plant account. It is not customary, however.

General- speaking, there is nothing in our plant account that is not replaced because the property is going on continuously, and while a replacement might not be strictly in kind there is a replacement in any expanding business, and there must be. I suppose you have more in mind a distinct unit such as a generator or a building where we write out of property account the original cost that is estimated and not known of the unit that is retired and charge to the capital account the cost of the new unit that is substituted.

That is the general method of the present treatment.

Broadly speaking there are three sources from which the Potomac Electric Power Company secures money,—sales of stock, sales of bonds, and from its operating revenues.

The actual cash received by the Potomac Electric Power Company

was $817,950 from the sale of a similar amount of par value of stock. The detail of that is shown on Sheet No. 5.

Mr. Syme: I am trying to ask you how much of this $6,000,000 worth of stock you actually sold for money, not cash as a bookkeeping matter, but actual money. It is cash used with that definition.

Mr. Ham: I cannot answer that for the reason that some of these sales of stock were charged up to individual accounts of certain individuals who had running accounts with the company. They may have paid the cash on open account and this was entered right in a running open account with those subscribers.

The $127,300, the amount of the stock originally issued to Crosby and Lieb was not for any money consideration. Actual money is the way the books show it. I don't think the books show it was issued for services and franchises.

I don't think those individuals made those sales. I think the Potomac Light & Power Company sold its property to the Potomac Electric Power Company and received therefor $50,000 in cash and $205,000 in notes in favor of the Potomac Light & Power Company.

If it paid actual, sure enough money or received actual, sure
986 enough money from Crosby and Lieb for this $127,300 worth of stock it would have deposited it somewhere.

We would not have a record showing that because we do not have any record of anything but the cash account in which are recorded all sorts of transactions affecting cash, including this one which you are now speaking of, but this account does not show with what bank the company had its transactions. I don't doubt but that it had a bank but the book is not now available.

We do not attempt to keep such things even now. We do not attempt to keep all of our different bank accounts separately. Even at the present time we don't show that in our permanent records of cash. For instance, we make a payment but we do not always enter it showing on what bank we draw that payment. But, anyway, regardless of the present method, this cash account does not show either in receipts or disbursements as to what bank they had the transactions with. I know about the $425,000 transaction with the Washington Railway & Electric Company; that was within my own time; that was issued in cash; that was a sale of $425,000 worth of stock of the Potomac Electric Power Company to the Washington Railway & Electric Company for cash. Don't think it was used to retire securities of the Washington Railway & Electric Company.

I find under date of November 30, 1902, this entry in Journal No. 8 of the Potomac Electric Power Company, folio 58, "Debit cash $425,000; to common capital stock $425,000, 4,250 shares of the capital stock of this company sold to the Washington Railway & Electric Company, November 26, 1902, for $425,000 cash, said cash deposited with the United States Mortgage & Trust Company."

The same folio: "Debit Treasury bonds $650,000; debit accrued interest on bonds $80,888.85; debit cost of plant $19,111.15; credit cash $425,000; credit common capital stock $325,000; $425,000 in cash and 3,250 shares of stock of this company delivered to Washington Railway & Electric Company November 26, 1902, in full pay-

ment and satisfaction of principal and interest on first mortgage bonds of this company now outstanding."

It would seem that the stock was sold for $425,000 and that with the proceeds of the sale of that stock and the addition of $325,000 worth of stock they paid the $650,000 of bonds and accrued interest on said bonds. I would say that it was a transaction involving the sale of stock and the sale of other stock to extinguish bonds. Of course, the bonds themselves had been issued for construction.

The details of this transaction are shown on ledger page 290, and show that the $50,600 in stock was paid either in cash or the equivalent of cash.

I consider that all of the items shown on this list after the original entry of $255,000, which we have covered rather fully, amounting to $50,000, $5,000 $5,000, $2,500, $5,000 $5,000, $2,500, $5,800, $5,800 and $50,600, were all paid in cash or the equivalent of cash—a total of $137,200.

Reference to Mr. George H. Harries' stock shows that $2,250 was issued for services and $750 for a note of George H. Harries which was paid in cash afterwards.

987 Great Falls Power Site—Ham.

I do not know whether the title is in the same shape that it was in three years ago, but it has not been completed.

It was purchased for the benefit of the Potomac Electric Power Company.

There was some effort made for the Potomac Electric Power Company to take it over before it actually did take it over. I don't remember the exact date, but it is a matter of record. The plan which was then decided upon was decided not to be the best way of doing it, and although the papers had passed it was decided better not to do it in that way.

I don't think it is a fact that legal obstacles were in the way of taking it over for the Washington Railway & Electric Company which prevented its being done.

Mr. Syme: Did you ever read in the minute made in your directors' meeting of May 28, 1908, and Mr. McDermott's statement? Did he say in that meeting, and if he did not it can be corrected by Mr. Bowen later, "I take it that there is great doubt as to the right of the Washington Railway & Electric Company to engage in this enterprise and have, therefore, thought that the stock of the Great Falls Power Company now owned by the Washington Railway & Electric Company should be purchased by the Potomac Electric Power Company. It is evident that if any such plan is to be carried out the expenditure should be made by the company which can fully utilize the power generated not only for the operation of street railways, which is the only legal use to which the Washington Railway & Electric Company could apply the power generated, but it should be used for lighting and manufacturing purposes both in Maryland and in the District of Columbia."

Mr. Ham: I don't recall the minute, but that conforms with my understanding of the case.

988 Before acquiring the Great Falls, the company had its capital stock increased. It was increased from $5,000,000 to $10,000,000 to make provision for future requirements.

989 Conduits—Ham.

Apparently $17,000 worth of stock was issued as part payment for a bill for conduits and another $1,000 was issued as part payment on the same bill.

990 Proceeds of Bonds—Ham.

The net proceeds from bonds were $7,488,466.44. No bonds have been sold above par. The face value of the bonds amounts to $7,930,000.

For the $1,700,000 of bonds sold through the United States Mortgage Company, $1,598,000 was received net over and above expenses.

The next issue of bonds amounted to $5,300,000 face value which netted $5,086,790.

The amount received from the sale of our present outstanding bonds was $6,684,790, the par value of the bonds being $7,000,000. This amount has been received since June 23, 1904.

Any more money spent on construction would have been taken from the stock issue of $1,000,000 issued in payment for the Great Falls Power Site. The balance has come out of earnings, out of moneys borrowed and out of the reserves and working capital that the company has accumulated.

Could not tell you exactly how much was spent out of earnings. It has all been thrown into one cash account. Some of it came out of earnings.

Mr. Syme: Referring to the sworn statements to Congress for 1906 to 1915, inclusive. In those statements you say, opposite the heading of amount paid out of earnings for betterments, "Nothing" in each case. Is that correct.

Mr. Ham: In the statement of construction and equipment, we have some items outside of construction and equipment as carried on the balance sheet under that title, consisting of unamortized debt discount and expense, investments, work in progress and abandoned property. The total of the items in construction account proper and these other accounts that I have just recited—we have a total of $13,470,843.98. I should say that the figure of $12,134,377.01, which is the figure referred to in the statement that you now call to my attention, did not include anything out of earnings.

Then, in each one of these years from 1906 to 1915, there have been no betterments which have been included in our plant account, because that is a statement of our books, and I think it is so sworn.

All of these have been out of earnings because we have included the cost of these betterments as an operating expense. Such an item as this abandoned property was strictly out of earnings, because we

did not capitalize the amount that we are now carrying in abandoned property. The item of unamortized debt, discount and expense was not capitalized. Work in progress was not capitalized.

Mr. Syme: Then, your statement to Congress here that that amount was paid out of earnings for betterments does not mean what it says, does it?

Mr. Ham: Subject to the explanation I have given before this Commission, I think it is perfectly clear as to the distinction I draw. * * * I meant that was a statement of operating expenses as they appeared on our books, and that the statement of plant account was a statement of plant account as it appeared on our books.

In the tabulated statement taken from the report to Congress, the actual cost of property is given as taken from his report and right opposite of that is the value of the property, approximately. After the year 1902, we ceased doing this and said he was unable to state any value because he did not think it was worth while to put in any longer what was clearly an approximation, and that it was unwise to include further estimates of value.

991 What I would call the central power station of the United States Electric Lighting Company was a modern station erected around 1897 or 1898. It had started about 1882 or 1883. It was as good a plant for those days as you could get. About 1897, the time had just about come to what you might call the end of the experimental stage.

Of course, there has been a continuity of development right straight along. You canot put your finger on any particular time that marks the end of one stage and the beginning of another. When the common ownership commenced, the United States Electric Lighting Company had a great deal more cables than did the Potomac Electric Power Company, I assume, because it was doing a larger business.

I do not think the Potomac Electric Power Company had passed through its period of development at the same time that the United States Electric Lighting Company had.

From 1899 they were not run as one company though controlled by the same interests.

Separate accounts and separate operations.

They had the same supervision in the form of general officers. There is no question about the fact that they had common ownership. They were run with general unanimity of action; but they were not run as one plant.

Part of it was known as the Washington Railway & Electric Company System.

They had separate stations.

992 Lands—Ham.

In cross-examination of Mr. Sangster's report, the witness devoted his main attention to the transmission and distribution. That was the main point we discussed, because it was much easier to keep

track of large units, such as buildings, land, and power and substation apparatus.

Referring to Sheet 76 showing 163,965 feet of cable and wire installed and 123,937 feet removed, making a difference of 40,028 feet, transcript page 4368, witness says—these transactions include renewals, repairs, changes, piecing and splicing of underground and overhead feeders, mains and circuits, and renewing and installing third wires and enlargements of service, cables and wires. Cables and wires of different capacities and different costs or of improved character have been installed in place of old wires replaced and removed. * * * In doing work of this character, there would necessarily be a shrinkage in the cable pulled out, because of the fact that there would be waste, and in splicing the new cable there would be more used than was drawn out. He could not account in detail for the net excess of 40,028 feet.

The purpose of submitting this statement was not to prove any betterment, but simply to show that the cable or wire that was included in our plant account, as stated on our books, is not the cable and wire that now exists. * * *

That figure of $41,348 is not intended to indicate a betterment, but simply that that was the amount of money that was used in the maintenance of the several items listed on this sheet, being accounts 31, 56, 57, 59, 60, 61, 64, and 65.

993 Graceland Cemetery—Ham.

The cost of this property is not divided between the Washington Railway & Electric Company and the Potomac Electric Power Company.

I do not know what the final disposition of it will be. It is now owned by the Potomac Electric Power Company, and was paid for by it.

The extent to which the Potomac Electric Power Company and the Washington Railway & Electric Company expect to use it depends upon future development. If it should eventually develop that it is entirely used by the Washington Railway & Electric Company, it would not be proper for it to be included in the property account of the Potomac. If it should be used jointly, the ownership should be all in one company and included in the property account of the one. The rental charge for such part of the property used by some one else should be included as income.

He thinks it will be used by both companies.

The property at 14th and B streets is almost entirely used by the Potomac Electric Power Company. The general officers occupy the office building. It is very hard to say what portion of the whole building the Railway Company uses,—"when one officer is serving both companies, I do not know that you could pick out just the portion of the building he is using for the Railway Company and how much for the Power Company.

994 Plant Expenses Paid Through Operating Expenses Representing Departmental Superintendence, Supervision, and Expenses (Ham).

The total amount found applicable is $287,148.58, and a weighted average per cent therein of 13 per cent. The 13 per cent is the percentage prorated not to the total construction account but to the total construction that was performed under the supervision of the department, the expenses of which are included in this statement. In other words, that would be $37,384.70, or 13 per cent of the $287,148.58; that was based on more than an accountant's idea of what it should be. That was an accurate analysis of the expenses of superintendence and superintendence and supervision applying both to construction and operation, which was determined upon by conference with the operating department to find, first, the total amount of expense that should properly be prorated between operation and construction. That amount was $73,147.90. Then, by analyzing the amount of construction work and the amount of maintenance work that was performed by this department, we found that $37,384.70 was properly applicable to construction work. Then we simply applied that upon the amount of construction work which was done that year, and it resulted in the percentage of 13 per cent for the year 1905.

At the time the work was done there was no such division made as to the cost because all of the expense of supervision was included in the operating expenses.

We could accurately, or with approximate accuracy, tell what portion of the final sum finally applicable because we had data with reference to it; but I simply say that the construction account had not carried any expense of superintendence. If you will turn to Sheet 68 under the title "Conduit Department" the cost of work done by that department was $69,963.64, of which $60,803.16 was construction work and charged to construction account, and the balance of $9,160.48 was maintenance work and charged to maintenance. In other words, 86.9 per cent of the work done by that department was construction work, and 13.1 per cent was maintenance work. In arriving at the amount of supervision that should apply to the construction work performed by that department, we applied those percentages of actual work done.

By "supervision" I mean the expenses outlined on Sheet 64, covering distribution superintendence, distribution office, etc. * * *

Some of these operatives are on annual salary and some per diem; most who do any supervising are on annual salaries. They do not get the same salaries whether they were superintending operations or constructions. You would have to have a different character of man, if he is going to be competent to oversee both maintenance work and construction work.

You cannot separate it exactly; but you attempt to find the equitable way of doing it. So, in the illustration I gave of the Conduit Department, if 90 per cent of the work was construction and 10 per

cent of the work was operation, it seems equitable that the supervision should follow the work in the same percentage.

The salary of principal officers of the company does not enter into this particular subject at all.

The salaries of the officers, so far as their jurisdiction extended over both construction and operating work, were found by a mathematical calculation to be distributed 48 per cent to construction and 52 per cent to operation; that includes the president and vice president of the company.

I did not use that percentage, because I felt that it was rather high, in ascertaining what would be a fair overhead charge to add on to the cost of construction, and therefore added on 5 per cent of the total cost of construction to represent this general administration.

We have not added on similar charges for construction work of the Railway Companies. It is not ordinarily done, I think,
995 in conservative accounting—to load your construction account with these overhead charges, although it would be perfectly proper to do so.

I cannot explain why it was not included in the reports to Congress any better than I have attempted to: that it was not included for the reason that it was thought better to keep all these expenses in the operating account. There can be no absolute division. It has to be upon an arbitrary basis. As to the superintendent of any particular department, you cannot say positively that a certain, precise percentage of his time is devoted to construction and the balance to operation. Therefore, we have put the entire cost in operation; but in ascertaining the cost, and particularly in comparing the cost with the reproductive cost, it is absolutely necessary to include these items in your statement of cost.

I consider that 13 per cent is a fair, reasonable and conservative amount to add to this construction and equipment, to cover the cost of superintendence, supervision and similar expenses.

996 General Administration—Ham.

General administration includes the salaries of the general officers, general office force, general administration organization and engineering and miscellaneous expenses.

I have a great deal to do with superintending construction. I am in charge of the accounts which have to do with construction work. The accounting of the construction work is very much more difficult than the operating end of it. We keep all of our construction expenditures with elaborate systems of job work. I go over the matter of contracts for the purchase of apparatus. I should say that quite a considerable portion of my time, when we are not engaged in valuation work, is devoted to things pertaining to construction.

I did not testify that 48 per cent of this should be charged against construction. After arriving at this percentage which led to a charge of $553,371.80, I stated in my testimony that I felt that that was an undue amount to add to the cost of construction, and reduced it to 5

per cent of the total construction during the period from 1900 to 1916, which amounted to somewhat over $300,000; to be exact, $322,013.32.

This includes none of the expense of the United States Company. These percentages have been applied simply on additions to property, exclusive of the purchase by the Potomac Company of these constructed plants.

997 Betterments and Improvements—Ham.

Page 62, Exhibit No. 38, is a summary of betterments and improvements recorded in job work accounts.

As to the total under Items A to N, $325,212.93, when he says "charged to capital account" he means that $155,000 of this has already been charged to capital account and the balance has been charged to income account. * * * On the theory that betterments should be included in cost of construction and equipment, a large part of that, substantially the whole of it, would be included in construction and equipment; but if on the different theory that betterments should not be included, certainly a substantial portion of that has been spent in actual betterments. The exact amount of that I am unable to state.

Each transaction that is involved in that was given some inspection, as to the propriety of the charge. In some cases we could lay down general rules which would apply to a number of jobs of a similar character. Then, again, there would be jobs that we would have to take up, each one by itself, to see what portion we would charge to construction account and what to operating expense account. But throughout all of that, there has been a policy of charging most conservatively to the property account.

I think if this statement is read in connection with my testimony, the result that I desire to accomplish will be accomplished: that the Commission will see that the company has been making its improvements out of its operating expense account.

998 Improvements in Cable—Ham.

Exhibit Ham No. 39, contained on Sheets 58, 59 and 60, does not have any relation to the table we have just been discussing.

This covers the improvement in the cable system, consisting very largely of the substitution of non-leaded cables with leaded cables, and in some instances with larger cables for the smaller cables. These are all charged to operation. None of these went through betterments or job work. This has continued over a period of ten years. This was in substitution for preexisting cable which was credited to operating expenses, either at its then value or scrap value.

That had at one time been carried to construction and permitted to stay there.

Has not determined the distance between the cost which the construction account now carries for this cable and the cost of this substituted cable, because we do not know, and it is impossible to ascer-

tain, the cost of these different pieces of cable that were pulled out. They may, themselves, have replaced other cable that had previously been installed. So, I do not know what is the cost of this cable that was pulled out, and much of it is of a type of cable that is not manufactured any more. We do not know what the price of it would be, even at the present time.

Mr. Syme: I am quite in sympathy with your view that the betterment ought to be charged to capital account if we could find out the cost.

Mr. Ham: I did not think the Commission would put an exact figure on this. I thought that in considering the whole subject they would take into account the fact that some improvements of a considerable nature and amount had been made in this way.

Mr. Syme: I apprehend that is true, Mr. Ham, and I asked you that question so as to get all the information I could, so as to be as just to you as possible.

(Then from pages 5398 to 5431 in the transcript is an appendix constituting the record in the Circuit Court of the United States for the Eastern District of Virginia. United States Mortgage & Trust Co. against Washington Traction & Electric Co., In Equity, heretofore referred to in Mr. Ham's testimony, which it will not be necessary to copy into the record but to which either side if permitted to refer to and can make such extracts as they may deem proper giving the appropriate page reference.)

(Cross-examination resumed December 29, 1916)—Ham.

On page 5384 I said: "We have not added on similar charges for construction work of the railway companies."

I wish to be entirely accurate in my statement and while that is generally true we have at times in large items of track construction work added on 10 per cent for engineering, superintendence and similar overhead work, but that does not apply to any items of the Potomac Electric Power Company.

999 Working Capital—Ham.

Witness stated that generally speaking he would say that working capital is the cash required for the general purposes of the company, materials and supplies, including fuel, receivables and payables and ordinary outstandings, both payable and receivable. It is the cash required for these purposes.

I do not think it has nothing to do with the amount of cash you may have in bank as an actual fact at one time or another time, but it is the cash which you ought to be permitted to have on hand for the purposes of the conduct of your business.

He does not think that is the distinction that he could draw. Actual working capital is a statement of fact of what you do have on hand. Any allowance for working capital in a rate proceeding would be that which the Commission felt the company could probably have on hand and be considered as a rate matter.

I would not say that it should necessarily be considered the amount of working capital; but I would consider that it would throw a great deal of light as to the necessities of the company for working capital, because I think over a period of years a company will carry a normal amount of working capital.

The amount to be allowed for working capital should be determined from a survey of your entire business, the average amount of materials and supplies required to keep on hand, and the amount of money necessary to have in cash to meet current obligations as they accrued from time to time, more or less anticipating your revenues. * * * You have to have money to conduct your business, and a portion of it will immediately be tied up in your credits with your customers. * * * By surveying all of the facts in regard to the business it is perfectly feasible to arrive at a reasonable allowance for working capital. The actual working capital was twice as great as that on June 30, 1914. On June 30, 1915, the net working capital is unusually high, $871,208.30. Call it "net working capital," because it was made up of the items of actual working capital which is the amount of money in bank on that date, which could be used in the ordinary everyday normal operations of your business but the extent of those current obligations is not measured by the extent of the money you have in bank.

The amount of money in bank will vary at different times. The necessities of the business will remain fairly constant; but by taking an average of capital over a period of years you will come pretty nearly ascertaining the amount of working capital that the company would have to have for the conduct of its business.

The witness is not confusing the term "working capital" with the amount of money in bank. He thinks the counsel might be confusing actual capital with what amount of capital this Commission should allow in a rate case.

The net working capital on December 31, 1912, was $225,000; and the net working capital on the 30th of June, 1915, was $871,208.30.

This $871,000 odd dollars are cash put in bank from any source it might happen to come from. It was not put there for any specific purpose. You should not fail to consider it. What constitutes their working capital? They have a fixed capital, which consists of their building and their fixtures—plant generally. Their working capital is made up of the cash they have on hand, the amount they have tied up in accounts with their customers, and perhaps some allowance for what they ordinarily owe to people from whom they buy goods.

Now, that is the actual working capital. They may have too much working capital; more than they really need. We may have had more than we really needed on June 30, 1915, but that does not take away from the fact that it was working capital. It may have been more than we actually needed on that date, but it was working capital just the same.

On June 30, 1914, out of the total of $413,945.43 net working capital, only $113,000 was in cash; for the same period of 1915, $559,194.09 was in cash.

Witness does not mean to say that the necessities of *of* the business for the year ending on June 30, 1915, required twice as much working capital on hand as it did in 1914. He thinks the working capital on June 30, 1914, was unusually low, dangerously; but that in going over a period of five years you arrive at the average working capital that the company has maintained, and in his judgment the sum of $520,000 for working capital for this company, including materials and supplies, is absolutely essential to the proper conduct of the business of the company and the maintenance of its credit.

1000 The figures of a particular date do not necessarily indicate the amount of capital that was required during the whole of that year. It is manifest, if you take these figures, that a cash balance of $15,871.46, which is the cash balance that this company had on hand on December 31, 1913, is an absolutely impossible figure for the company to conduct its affairs with regularity. For some reason the cash was drawn down to the vanishing point; but a company of this size could not expect to conduct its business with cash on hand of $15,000. So, I say that it is proper to disregard any particular date and strike a fair average; and that is the purpose of submitting this statement.

The statement of monthly balances shows a balance on hand of $375,000, whereas the statement I have prepared of yearly balances and use in the computation of working capital is $276,749.71.

1001 **Rate of Return—Ham.**

Referring to Sheet 77 and known as Ham Exhibit 41, the witness included in that item $4,428,294.63, which indicates that you carry to your construction account the total amount of what you consider the cost of the United States Electric Lighting Company which includes the assumption by you of any obligations of that company, and the rate of return, after that ite-, of course, is calculated for the succeeding years upon that figure.

The item of $1,039,599.73 opposite the year 1906, and the figure $912,899.73 in the year 1907 represent the expenditures on the Benning power plant and large sums of money were spent in substation apparatus and in additional transmission system which was largely occasioned by the building of the new power plant and the cost of the new power plant and the expansion of the business.

Referring to the net sheet—73, Ham Exhibit No. 42, which is the return on construction and equipment adjusted, wherein he allowed, under the head of "Other *Add'outs*" for administration $322,013.32; for superintendence, $524,807.69; other interest during construction, $253,045.91, totaling $1,099,866.92; and to Sheet 79, Exhibit 42 to which he has added for administration, superintendence, interest, etc., the total sum of $4,425,143.05, a difference of $3,300,000. The witness said "I did not do all this work myself. I have quite a force under me. I do not do all the work myself. I think I can explain it satisfactorily now.

Sheet No. 77 shows a net income of $9,871,891.96. In transfer-

ring the net income from the books as shown on Sheet 77 to this statement of net income adjusted, you will note on page 79 that that is carried forward, not as $9,871,891.96, but as $6,322,058.59; the difference consisting of interest on funded and floating debt, amounting to $3,549,833.37, that, of course, being part of the return on investment.

Now, in stating the net income on Sheet 79, exclusive of interest charges, and to get the adjusted net income, it is necessary to add the total interest to this figure of $6,322,058.59, which interest amounts to $3,549,933.37, and also items amounting to $375,309.68, which are made up of the items shown on Sheet No. 78, consisting of administration, $322,013.32; superintendence, $524,807.69, and miscellaneous, $28,488.67.

You do not have to read them together with that explanation, because it is a statement of fact. But, in order to explain the two items comparably, such an explanation, I think, is necessary. In other words, I did not want to duplicate this interest during construction. That is the reason for setting up the statements in somewhat different form.

Interest Charges, Funded Debt, by Years.

1897	$313.33
1898	19,218.15
1899	31,256.20
1900	32,499.40
1901	32,500.01
Period ending Oct. 1, 1902	24,374.97
Period ending December 31, 1902	14,805.56
1903	43,200.00
1904	84,221.67
1905	120,666.66
1906	137,944.44
1907	159,250.00
1908	188,053.52
1909	239,400.01
1910	272,547.21
1911	293,566.67
1912	308,955.01
1913	321,313.89
1914	336,596.70
1915	349,938.00
Period ending June 30, 1916	175,000.08
Total interest charges, funded debt	3,185,621.48

Interest Charges, Floating Debt.

1898	2,591.69
1899	1.30
1900	4,404.44
1901	6,521.71
Period ending Oct. 1, 1902	5,388.68
Period ending Dec. 31, 1902	7,315.99
1903	55,134.65
1904	22,762.77
1905	zero
1906	11,349.99
1907	48,088.91
1908	73,024.38
1909	33,899.28
1910	28,810.58
1911	17,990.29
1912	7,937.46
1913	12,129.92
1002 1914	4,108.54
1915	15,410.10
Period ending June 30, 1916	7,341.21
Total interest charges, floating debt	$364,211.89
Grand Total, Interest Charges, Funded and Floating Debt	$3,549,833.37

Referring to the last co-umn on Sheet 79, the witness stated that he is not surprised that counsel could not understand that, because he expected that fact to be brought out in cross examination; but that is not the reason why he did not explain it in direct examination, but thought he might confuse some one if he tried to explain the whole thing before you had had an opportunity to look over the statement, No. 79.

Suppose I explain the second item before I do the first one. Take the second one, which is $604,628.15. This is one-half of the sum of the total cost as it appeared on December 31, 1896, and as it appeared on December 31, 1897. In other words, it is the mean between the construction account as it appeared at the end of those two years. In other words, the average cost during theat period is taken to be half way between what it was at the beginning of the year and end of the year. The column headed "average rate of interest" is a typograp-ical error; that should read "Average Cost."

It will be just as well to use the word "investment." I see that word has been used on every other page except this one; so, that is probably what was intended.

Now, as to the first item, that covered only a quarter of a year. I am arriving at an annual rate of return; so, after taking the difference, or after ascertaining the mean between $278,134.32 and $454,-

276.28, you take one-quarter of that figure on which to base the annual return.

Mr. Syme: I see, Mr. Ham. It is perfectly clear to me now.

1003 Working Capital—Ham.

There has been a very decided change in our requirements for working capital during the period 1915-1916. That is evidenced by the increased amount due from consumers alone. We have had, on June 30, 1916, the sum of $309,000 due us from consumers, which is larger than it had been at any time in the history of the company prior to that, and over $100,000 greater than it was on June 30, 1914. Our business has expanded in the last two years very materially.

For the last year the expenditures for extensions have not been unduly heavy.

Mr. Ham: I really cannot see how this Commission could decide upon a smaller working capital for this company than the figure I have mentioned.

Mr. Syme: I cannot either, except on the theory that you had been doing without and have never had any such sum up to less than two years ago.

Mr. Ham: Do you know why that was?

Mr. Syme: No, I don't know why it was.

Mr. Ham: Because they had the Washington Railway & Electric Company to fall back on, which other companies do not always have. The money has been paid back, but it is very nice to have somebody to go to and get money from if you need it. In 1915, we borrowed $163,763.28, on bills payable, for construction purposes.

The books show that in the last three years, the total amounts borrowed from the Washington Railway and Electric Company was $164,000 for which notes were given. We have open accounts running between the two companies all the time. On June 30, 1916, the open account of the Potomac with the Railway Company showed that the Railway Company owed them at that time $8,963.28.

1004 Property, Sold, Scrapped, and Abandoned—Ham.

No deductions have been made from our plant account in the way that he presented his statements.

We have taken out of our plant account many deductions, but I say that from our plant account, as stated on our books, I have made no deductions in any of the testimony that I have given.

It shows deductions we have made from time to time through our books, but none as reported by Mr. Sangster. You have that entire information as to what deductions have been made on our books. That is what Mr. Sangster has determined through his examination of two years or more of our accounts.

The witness does not think you could arrive at it from Mr. Sangster's report of just what the company has deducted from time to time through the examination that Mr. Sangster has made. It may

or may not be incorporated in his report. Our books have been open to the Commission for over two years and a half in this matter.

Chairman Kutz: Do we understand that you admit the substantial accuracy of the facts in Mr. Sangster's report, but dissent from his deductions and conclusions?

Mr. Ham: That is a very broad statement, Colonel. I would want to know just what you are referring to. I do not agree with many of his deductions, and I do not agree with some of his statements of fact; but I cannot answer it in a general way without knowing what you refer to.

Chairman Kutz: The Commission understand that those statements of facts that were not criticised are admitted by the company to be substantially correct.

Mr. Ham: By no means. I do not think that is a fair assumption, because we have not attempted to go into everything that he testified to.

For instance, just to illustrate my point, in testifying in regard to the comparison between Mr. Sangster and Mr. Pillsbury and showing the errors that I felt Mr. Sangster had made, which he would not have made if he had had an inventory to go by, I only called attention to some three or four different items. I could have called attention to many, many other items, but the only purpose of the testimony in that regard was to show that the method that Mr. Sangster followed was one that was bound to lead to erroneous results, and I simply cited these illustrations as proof of that general proposition.

Of course, we do not admit that any of the items about the transmission or distribution system that Mr. Sangster has eliminated should be eliminated under any theory that the Commission might follow, because we believe that the transmission and distribution system has not only been thoroughly maintained, but has been positively improved. As I admitted in testimony, we do know that certain power station apparatus, particularly at the Potomac plant in Georgetown, has gone out of existence and remains in our property account, and that the reason for our keeping it there was that we considered it a necessary cost of the development of the business.

Chairman Kutz: You believe that the original cost of the property of the company is greater or less than the cost of reproduction as of July 1, 1916? I mean the original cost, as measured by the sacrifices of the investors.

Mr. Ham: I do not know that I could say that, I believe, though, with what I know of the conditions, that it would cost more to replace the property as of July 1, 1916, than it has cost the company.

I would have more doubt if I was asked to answer that question. The prices at that time were low, and if you include the historical cost of the company and allow in that cost the costs of development and all of the intangibles that are a necessary part of the cost of a property, it might be that at time more nearly comparable with the cost of reproduction.

1005 Paving—Ham.

Chairman Kutz: What does the item in your accounts for paving over conduit represent? Have you not such an item in your accounts.

Mr. Ham: No. Each piece of construction, any piece of construction, carries all of its costs, including paving. So that we have no separate account in which we state the cost of paving.

I think Mr. Sangster set up something that he got from our job cards as being part of the cost of paving; but he only got a part of it, because doing it the way he did it he would almost surely overlook a portion of it.

I do not think it would be possible to get a statement of the total cost of the paving at this time over the entire history of the company.

Witness does not know whether we have records showing what proportion of our existing conduits lie under streets paved with fixed pavements and what proportion lie under streets not so paved. It is quite safe to say that substantially all of our conduit lies under paved streets.

He thinks that substantially all of it was placed after the pavement was placed.

Does not mean to say that there are not exceptions, but believes it to be the general truth that in the aggregate nearly all of the conduits were laid under paved streets.

I would not want to be any more definite than I have been. I am only giving you my best judgment.

1006 Real Estate—Ham.

The company has purchased real estate in Square 259 in which the company's offices are located. I could not furnish the information as to improvements and land value. I could furnish what we paid for the property. Your records would show that as fully as ours—I mean the records of the assessor.

Witness has not changed his opinion since direct examination on the subject of the possibility of Mr. Sangster showing cost of existing physical property without an inventory.

The further taking of Mr. Ham's testimony was adjourned to January 3, 1917.

1007 In compliance with a request of the Chairman of the Commission, Mr. Ham presented the following memorandum as to the purchase of a certain lot by the Potomac Electric Power Company on October 12, 1916.

Memorandum.

"The Potomac Electric Power Company on October 12, 1916, purchased lot 6 and north one-half of original lot 7, in square 259, with the improvements thereon, at a cost of $12,000 cash, subject to deed

of trust amounting to $30,000, making the actual cost of the property $42,000.

The improvements were considered of little value to this company, as they will probably be used only temporarily and then torn down.

Title as taken in the name of the American Security and Trust Company, trustee.

Areas as shown in the plat book are as follows:

Lot 6	12,084 sq. ft.
North one-half lot 7	4,187 sq. ft."

and testified that the company purchased this property "practically upon the land values only."

1008 Taxes—Ham.

He testified further that the Potomac Electric Power Company pays taxes on its lands and buildings, what is ordinarily termed real estate, and also on its conduits, poles, wires and lamps, and things of that kind, and 4 per cent on its gross receipts.

The tax bill specifies wires but not cables. The amount is not large, however, and it might not apply to underground cables, and as our cables are of considerable value apparently it is not on the full value of our cables. We furnish some statement of the additions each year. I do not know how it originally started. It goes way back to the very early days.

The company has never protested against the tax assessment in that regard. It has in some other matters. One thing in particular * * * was the method of calculating the 4 per cent tax including items which we thought should not be included, and the assessor removed it from the assessment. It may have contested the assessed valuation on buildings and lands from time to time but if so I do not know anything about it. Perhaps Mr. Bowen could answer the question.

Whereupon Mr. Bowen said "It has been in the minds of the company that they should not have to pay any tax upon overhead wires or conduits, but the company has continued to pay the taxes without apparently raising it. It might hereafter be referred to the Corporation Counsel for an opinion.

1009 Great Falls Power Site—Ham.

Chairman Kutz: The evidence before the Commission is that only two-thirds of certain power rights at Great Falls were in process of transfer to the Potomac Electric Power Company. I want to know who owns the other third of those same rights, whether it be a stock interest or property interest.

Mr. Ham: I should say the actual owners or the equitable owners are the holders of the one-third stock interest in the Great Falls Power Company, the names of several of whom are known to me.

The Great Falls Power Company is still in existence as a corporation.

The Washington Railway & Electric Company acquired merely two-thirds of the stock of that company.

The witness cannot say from recollection who the remaining stockholders are in the Great Falls Power Comany. He thinks the stock records are available and would show who they are. The Roebling people in New Jersey have a large interest. Mr. C. P. King is the President of the Great Falls Power Company.

The books of the company are in the custody of the officers of the Great Falls Power Company and the books of record are in the custody of the witness as comptroller.

Mr. Syme: If you want that information I have no doubt Mr. Ham will put it into the record for you.

Chairman Kutz: I do not want it especially.

Mr. Bowen: I will state, Mr. Chairman, for your information that there are certain proceedings pending in the courts of Virginia that are not determined, and until they are determined the Washington Rail-ay & Electric Company is unable to complete the conveyance under contract which it has with the Potomac Electric Power Company.

Chairman Kutz: Yes, I understand that.

(This completed the testimony of Mr. Ham.)

Testimony of the following witnesses was introduced on behalf of the Company after the direct examination of Mr. Ham, pending his cross-examination.

December 19, 1917.

1010 RAY PALMER, after being duly sworn, testified that his residence was Malba, Long Island; 38 years of age; by profession, an engineer; is the President of the New York & Queens Electric Light & Power Company, located at the northwest section of Long Island, covering an area of about 110 square miles of Greater New York; that he was born in Sparta, Wisconsin, in 1878; graduated from the high schools there and from the University of Wisconsin as an electrical engineer in 1901. In June, 1901, he joined the J. G. White & Comany, Inc., of New York City, as assistant superintendent of construction on the New York & Queens Electric Light & Power substation installation at Flushing and at Jamaica; and in December of 1901 went abroad for J. G. White & Company, Ltd., of London, and remained with them until May of 1904, when he came back to this country due to the illness of his wife.

While away with J. G. White & Company he was an estimating engineer, worked on construction work and made various reports upon various types of construction that were being installed by that company of London.

He aided materially in developing contract analysis sheets, whereby one could tell whether estimates as made were being fol-

lowed out in actual construction, which showed the unit estimated cost; the unit estimated costs of construction work. The actual cost of doing the work came in in semi-monthly reports and was compared against the actual estimated cost, so as to keep our estimated cost as near as possible to actual cost of doing the work, so that in future estimates the company would be safe in making bids upon the various kinds of work.

Upon his return to this country, he joined the Union Traction Company of Chicago as electrical engineer, which company at that time operated a cable and electric railway systems on the north and west side surface. They had five generating stations besides their various cable plants.

In 1906 he went into consulting engineering work in Chicago for himself; handling work from that time to 1912 as a consulting engineer in Milwaukee, Chicago, and upon local properties, making various reports and installing work.

In 1912 he joined the Carter H. Harrison, Jr., Cabinet in Chicago, as city electrician, and within six months they changed the name to the Commissioner of Gas and Electricity.

He stayed with Mayor Harrison until he left, and in 1915 went back into consulting engineering work.

In November, 1915, he joined the New York & Queens Electric Light & Power Company as General manager and vice president. In September, 1916, he was made president and general manager, which position he still occupies.

During the time he was with the City of Chicago, he had charge of the municipal lighting, police, telegraph and fire alarm systems, which is the largest municipal lighting system in the world. * * * An expenditure between four and a half million and five million dollars was made during the — he was connected with the City in the municipal lighting system.

The Sanitary District plant was a water power plant; prior to that time it was steam-driven.

The Sanitary District power was transmitted from Lockport to a distribution station from which point it was distributed to fourteen city substations, feeding local and adjacent areas.

The Sanitary District was a governmental body elected by a voting people of the Sanitary District—Cook County comprising 80 or 90 per cent or more of that Sanitary District.

It was organized and established to take care of, as far as possible, and by the use of the water flow from the Sanitary District canal they have used what might be called a by-product of water and the head of water to generate electricity, which has been transmitted back to Chicago for use there. That he has looked over
1011 the itemized unit prices and the extension making up the reproduction cost as shown by Mr. Almert.

He has not studied into the local conditions surrounding the cost of material and labor but assumed that amount which has been made up before he has added in overhead charges. That is, the amount which he refers to is the amount that is shown by Mr. Almert's report, which I looked over.

Mr. Barbour: Just what do you mean when you say "cost not including any overhead?"

Mr. Palmer: I consider actual material and labor costs, under the conditions under which a hypothetical plant would be reproduced; that such amounts as architect's fees, detail engineering and contingencies which may be involved in the construction of such a plant, and any omissions that may be left out in making up an estimate of the total amount of cost of reproduction of such a plant, insurance, liability, accident and fire, during the construction period, general contractor's profits if let on a contract basis—all of which should be included in the actual cost as the completed cost of construction.

Referring to page 9 of Mr. Almert's report, which purports to be a combined summary of direct costs of physical property, and which totals $13,127,077.32, he was asked to state to what extent he had dissected the cost represented in that statement, and as to which part, if any, he did not assume responsibility, the witness responded:

"I have assumed a total labor and material cost of $10,262,238 as being an amount which is made up of the actual labor and material as estimated in this installation. I have added to that additional distribution of distributed items which I consider should go into the actual installation of the physical property, amounting to a total of $2,033,871, making a sum outside of that which has been assumed by me for land item, which is Mr. Almert's figure of $830,968, making a total of $13,127,077."

He has taken Mr. Almert's estimate and assumed that the labor and material costs are correct, and has taken those various items out under the sub-heads under building, power plant equipment, substation equipment, transmission and distribution and miscellaneous property, to make up the item of $10,262,238. That is Mr. Almert's figure, less the directly distributed overhead costs and less the real estate as shown by Mr. Almert's report.

To this labor and material item he has added certain percentages for detail engineering, including architect's fees, ranging from 3 to 5 per cent; omissions and contingencies, nothing to 5 per cent; insurance, nothing to 1½ per cent, and general contractor's profits of 10 per cent, which against these various sub-items make an average of approximately 20 per cent, which has been added and which increases the amount of $10,262,238 to $12,296,109, to which has been added this assumed value by him of the land of $830,968, making a base cost of $13,127,077, which is also Mr. Almert's figure.

That he has prepared a statement showing the details of this which was introduced in evidence and marked "Exhibit Palmer No. 1."

In explaining this statement—in the right hand column there is a total of $1,095,682 opposite the item "Buildings" which represents Mr. Almert's original figure of the cost of all of the buildings of the company, which he has divided into two items;—one purporting to show the cost of the labor and material in those build-

ings—$916,076, and under the column "Additional Distribution," $179,606 represents these overheads or distributed costs referred to.

The total of these two figures are Mr. Almert's figures, and the analysis of the same is taken directly from his report. On page 9 of Mr. Almert's report there is an item for buildings, amounting to $1,095,682. This refers to itemized statement on pages 30-
1012 137. Page 30 shows this total amount of $1,095,682, which shows the total cost of each individ-al building.

Referring to page 44 of the detail of the new office building, it shows a total amount of $88,226, which is made up, as shown by the estimate, of $73,829, representing actual labor and material, to which have been added certain percentages, consisting of designs and specifications, omissions and contingencies, insurance and general contractor's fee, amounting to a total of 19.5 per cent against this item of $73,829, or $14,397, making a complete total of $88,226.

The witness separated the percentage costs shown here on each class of items, so that it will show the average percentage against the total; that is, the average percentage added to the labor and material costs, against each one of the items, such as buildings, power plant equipment, substation equipment, and so forth, upon the same basis as is shown by this new office building estimate which he has just gone over.

While adhering to that first item of buildings, the sum of $179,606, shown under the heading "Additional Distribution," is the sum of all of these percentages applied to all of the buildings, which is added to the labor and material cost of $916,076 to make up the total estimated cost for buildings.

The column headed "Labor and Material" represent the base costs as determined by Mr. Almert, and the witness does not go back of his estimated labor and material elements, but merely into the undistributed overheads, and from his experience he considers these directs distributed overheads to be fair and reasonable in every way, and assuming the cost of labor and material represented in that (that is, the bare labor and material, without these directly distributed overheads) to be fair, he considers the percentages which Mr. Almert has applied for design and specifications, omissions and contingencies, insurance and general contractor's fee are fair and reasonable, as an engineer and expert; so that up to this point, the only portion of these items that he is not able to accept responsibility for are the figures under the column "Labor and Material," which he understands are made up of quantities, times unit prices, and upon that hypothesis he arrives at the total base cost of $13,127,077, the same figure that Mr. Almert has arrived at; that is, Mr. Almert's figures are supported by his judgment; that is, he has been able to apply his judgment to them and accept them but as to the other two amounts—$10,262,238, representing labor and material, and the item of $830,968, representing cost of land as reported by Mr. Almert—he has not been able to apply his judgment to.

Further, in his judgment, these figures do not represent the cost

of reproduction of the property of the Potomac Electric Power Company. There should be added certain direct overhead and general overhead percentage charges, which are considered fair and reasonable; that he has considered this matter in the manner in which he has, as an engineer, always felt it should be settled and estimated on a basis of this nature.

1013 Construction Program—Palmer.

That he has gone into the detail and has discussed with Mr. Almert the matter of his schedule, his plan of reproduction and his construction program, and considers that a plant of the size which is estimated upon here would take fully a development period of five years to properly install a plant of that nature; the construction period being over a period of more than four years.

He bases this conclusion upon the experience he has had upon the construction of properties, construction of plants, and installation of overhead systems and underground systems. His judgment is due to his experience which he has had on the works he has been connected with in the fifteen years of his experience.

It is physically possible to construct such a plant in a shorter time, but it would be very uneconomical to try to force the installation beyond the natural basis of construction. The delivery of materials, the supply of labor, the price of material and price of labor, depending upon the estimates, would all enter into the situation.

In connection with the property of which he is the president, his company considers that, in order to build a substation or build a garage or store room, an estimate must be made a year or more in advance, before any actual installation work begins upon an individual building of that nature.

An office building, which would be a large one, has been discussed by the management of the company with which he has been for some eighteen months, and it is not expected that the construction work will begin for over a year from now. A budget is made out each year in the various companies he has been connected with which shows what the program should be for the next year, the second year, or the third year. We have a budget which is made out for four years in advance, to know what we can expect due to the natural growth of our system and what we can expect as to an abnormal growth of our system. It is my belief that a five-year development period or a four-year construction period is a minimum period to provide economically for the installation of an undertaking such as is shown by the reconstructive estimates of Mr. Almert.

If he assumed a shorter period the cost would be materially greater in the handling of the work on that basis. In handling a large project of that nature, one must have each section completed to fit into the next section, and if you try to rush that work you are bound to have trouble, besides losing in lack of economy.

At the same time, the city would have its streets torn up, due to conduit systems being installed and manholes installed, the

setting of posts and things of that nature, very much more in a shorter period than it would have in the longer period of time. In other words, longer lengths of streets would be torn up during the period. The cost would be increased over that of a longer period of construction, and the same applies to getting materials in place, and costs of that character.

1014 General Contractor—Palmer.

It is the belief of the witness that a general contractor, properly handled from a managing organization or executive officers' organization, can do the work on a more economical basis than could be done otherwise. It is a safer method of doing the work when you know your contractor. It is a fair method of treatment of your contractor, and it is paying for value received.

1015 Engineering, Supervision, and Inspection—Palmer.

He considers the company engineering, supervision and inspection and administration during construction is an item which should be added as a direct overhead against the base cost of $13,127,077.

Due to his experience, he has considered that overheads should be added directly to the base cost, and that the percentages should be based upon percentages which are fair and reasonable and shown by actual experience to be the proper amounts to be added; that engineering installation work throughout the country has shown that certain overhead costs are proper costs to be added, and it is upon his experience in connection with the work that he has done that he bases the various percentage figures or percentage items here, to be added to the base costs.

The company engineering, supervision, would mean the checking up of the work as it progresses under the immediate supervision of the contractor, the contractor preparing the detailed plans, and in conjunction with the architect, plans to construct this work under the supervision of the company's engineering force, which would have to look after the various costs that are being incurred to check the overhead which is added, and see that the material reaches the ground properly, and to check up on the tests of any materials which might have to be made, such as cement which is being supplied, and the mixture of the cement and things of that nature, which may be checked directly from the office upon inspection during construction.

The administration item within that general item of 2½ per cent which he has allowed for that item, an overhead amount, means that a certain sum should be allowed through your construction and development period to cover the administrative officers who, of course, give the word and give the main directions to the engineering forces which will check the contractor's work as it goes into service.

We have in detail engineering and architect's fees, instead of general contractors, a fee of from 3 to 5 per cent on buildings. It depends upon the building.

If he were charged 5 per cent, he would expect to get plans, which would be supplied by the architect on suggestions made from the company as to what they wanted in the form of a building. Would not necessarily have to supervise the construction. Would not pay 5 per cent for plans only; he would expect to see that the work was going on in accordance with those plans. Would not expect to get supervision, too. The supervision could come from the engineering force to advantage.

This 5 per cent for the architect,—he would still think he was justified in paying 2½ per cent for inspection, administration, for the testing of the cement and things of that nature, which do not come within the architect's fee at all.

The lump sum of all those items should amount to a percentage upon the base cost of 2½ per cent. For one class of work it is different than for another class of work, but the average should be based upon an average of all the classes of work which would be involved in such an undertaking.

He has not arrived at a total, and then computed the percentage. He has considered that 2½ per cent to be added to cover the cost of the company's engineering, supervision, inspection and administration.

One could sit down and separate it in each individual class of construction; but he does not feel that that is any more necessary than to figure an interest charge which is a fair charge to be allowed or some charge that might be used in determining a cost which is fair and reasonable.

The general contractor's profit, omissions and contingencies, insurance and detail engineering, he considers a part of the
1016 product as installed. In other words, it is not the raw material. He considers that an actual cost—the product installed, and to be used as a base. He does not include the 2½ per cent against the land, but against a base of $12,296,109.

He does include the general contractor's 10 per cent profit, and that is a very reasonable percentage. As he understands it, contractors are to handle the work in conjunction with the architect, handles the detailed engineering, and he must pay out certain expenses, out of his own pocket on *on* the work, which would ordinarily come out of his 10 per cent profit because such charges cannot be charged against the actual cost.

He applies the 2½ per cent for engineering, supervision, inspection and administration during construction to the total base marked "B," minus the land item of $830,968. He differs with Mr. Almert in the treatment of that item, in that he allows a smaller percentage on the total, including land.

This percentage of 2½ is applied to the $12,296,109; that has the letter "C" following it and he thinks all these percentages that are followed by the letter "C" indicate that they apply to that base.

1017 Preliminary Operation and Adaptation Expense—Palmer.

The witness considered that in the installation of such a plant as has been estimated upon here it necessarily, in order to have the plant go into operation, will involve a certain cost for testing and putting, for instance, a steam turbine into service. You will operate it for some time by using outside men from the manufacturing concern or from your own organization or using consulting engineers, to see that such equipment would go into service in proper condition. In other words, if you purchased a turbine, with generator direct connected, you would want to see that that turbine, before you put a 100 or 150 per cent load on it, had gone through proper stages showing that the condition of the turbine was in accordance with your specifications; and in testing out or experimenting with certain types, considering advance in the art, that on certain pieces of equipment can be to advantage carried on in the laboratory. In developing or in constructing a plant, you want to put in the most modern kind of equipment; and there would be a certain expense or a certain amount that should be allowed to cover that charge.

He considers thirty-five hundredths of one per cent, which amounts to $43,036 would cover this. You would have to subject your conduits to preliminary adaptation expenses. * * *

There has been a very rapid advance in the art of conduit systems in the last ten years. The first type of conduit systems, used in Chicago, for instance, meant the combining of ducts as multiple units, but not as the tile duct is today or the concrete conduit is today. Today we have a tile duct conduit, a steel pipe conduit and the concrete duct or the fibre duct conduit. Now, to start with fibre duct conduit for crossing a street, for your series street lights, to use steel ducts or perhaps a patented duct which will come on the market will subject you to an expense which he thinks should come in under the conditions under which you are building this property.

This charge is primarily to cover the preliminary expenses in connection with starting your plant into service, and in arriving at that percentage, consideration is given to the fact, that everything has not got to be inspected as closely as everything else has.

(The discussion on this subject was continued in the transcript at more length down to page 4739.)

1018 Working Capital, Including Stores, Coal, Supplies, and Necessary Minimum Balance—Palmer.

A percentage should be allowed for working capital, including stores, coal, supplies and necessary minimum balance in order to carry on the business to an extent of four and a half per cent, which amounts, under these conditions, to $553,325. He knows of instances where the working capital, including these various items,

is a larger percentage amount than is allowed under this estimated cost basis.

He has combined stores, supplies and working capital. He believes that it is all a question of working capital as it has been treated by various engineers throughout the country in making up estimates of this nature, and he considers that the percentage of 4½ per cent is a fair and reasonable allowance on this total amount, minus the land value.

1019 Taxes During Construction—Palmer.

For taxes during construction he adds the same amounts which Mr. Almert had arrived it, though he arrived at it by a different method.

He has taken that an addition of taxes during the construction period is a necessary item, and has studied into the method by which Mr. Almert has added his $131,271, and considers it a fair and reasonable item, which figures out one per cent, as he has allowed here. In other words, he has taken the amount which has been allowed or estimated by him and put that in, which means one per cent.

He checked Mr. Almert's amount.

The way in which he determined it is, that the taxes amount to in the neighborhood of one per cent upon two-thirds of the valuation of the property on streets and in buildings, but not the equipment in the buildings. It is based upon a period of two years from the time you start to put your unit in or your plant, that is, start to build your plant, until the time it is completed, or the time when you start to build your conduit until the time it is completed, over a period of from eighteen months to two years. So that if you take an average of that period, an average of that two-year period, it would figure out in the neighborhood of this total valuation a total amount of $131,271. "That is the way I have understood it for your local taxing conditions."

Chairman Kutz: All right.

At the bottom of page 1 of his estimate, he derives an estimated cost, after direct overhead is added, of $14,162,112, which is the total after adding direct overheads and before adding any general costs.

1020 Compensation to Conceivers of the Project—Palmer.

In the installation of a project of this size and nature on the basis which has been assumed here of reproduction basis over a period of years, the introduction of an undertaking of this nature would ordinarily be brought to the attention of financiers, promoters, brokers, or engineers who are interested in the development of properties. Many times properties are introduced by the chances to meet certain local conditions by the installation of a gas plant, the installation of an electric plant or the installation of a railroad in territories which do not have those public utilities, and that one that does introduce

such an undertaking will be expected to be paid for that. The one that introduces an undertaking of that nature perhaps has spent years to figure out that you have a productive field. * * * Perhaps he has made surveys. Perhaps he has taken bankers down there several times to look over the project, and they turned it down in the early period. Later he comes back and introduces it to other bankers and other people who want to take up the project, all of which goes to make up a certain cost that he has been put to, besides the profit which is paid him for finding, so to speak, the fertile field and studying it far enough to show to the financier that there is something there which will interest him.

It is a cost which, perhaps, has been made due to the starting of the plant. If it is a physical plant that you are thinking of—a completed plant—somebody has thought of it first. A report has been made upon the project before the financiers have been interested in it. In a hypothetical case it is a proper amount that I have allowed here, I believe, on this basis which we have been considering, $656,353.

It is a cost which is made up of what it would cost if you went into another territory. It is on a hypothetical theory, upon a territory where you are going to put this same plant in under conditions which you have locally and under which you are purchasing material and obtaining labor.

This is a legitimate, fair and reasonable charge for a plant of this size to be developed through a five-year development period and a construction period of four years in a territory which must take care of the same number of customers which this plant takes care of at the present time.

Witness submitted a report on an investigation of the Commonwealth-Edison Company while City Electrician of the City of Chicago in 1913.

In reviewing the cost of reproduction he did not consider or allow an item for conceivers' profit, because they did not present that in their valuation. He accepted a valuation in that case which came to them from the City of Chicago, made by H. M. Byllesby & Company. * * * on an actual cost basis, which is an entirely different theory from that under which you are developing your plant in Washington.

He could not say whether in the actual cost there was an item of conceiver's profit.

There were intangibles allowed there to the extent of $2,500,000, which were allowed in the estimate, and which were considered fair and reasonable, and upon which the rates were reduced to the consumers in the City of Chicago.

Conceivers' profit is an intangible cost. If it was an actual cost it would be in the actual cost.

Intangibles are actual.

Commissioner Newman: I do not agree to that.

1021 Mr. Palmer: The purchases of acquired property were put in on the intangibles which we had there. The purchase of good will was paid for in the purchase of acquired property. It is

an intangible. It is an actual cost. That is why I did not answer your question differently.

Good will and going value, as we describe it, amounted to something over $2,500,000. Nothing was allowed for franchise value. Allowances were made for commission and brokerage.

1022 Commission and Brokerage—Palmer.

There are two means of handling the brokerage question. One is to amortize your brokerage through a period of years, and the other is to put it into the capital account. Your amortizing over a term of years makes the 20-year consumer stand the price, whereas, if it is capitalized it makes the consumer from the beginning to the end stand the prices. I have thought capitaliization is equally fair to that of amortization. It is fair in both ways.

Chairman Kutz: The amount of the item you allow for commission and brokerage is what? * * * You have an item here of commission and brokerage of $681,000, have you not?

Mr. Palmer: Yes.

Chairman Kutz: What does that represent?

Mr. Palmer: That represents the brokerage of putting in and handling of the financial end of the project, the raising of funds and the costs naturally incurred in connection with that.

Chairman Kutz: Do you remember saying in your report that "brokerage on stock when charged to plant account introduce fic-ti-ous values in the capital assets, and accordingly is not a proper item for capitalization, but in considering capital liabilities and circumstances attending their issuance, it should be given proper weight in determining the rate of return to be allowed"?

Mr. Palmer: Yes, sir.

Chairman Kutz: Have you changed your mind on that somewhat?

Mr. Palmer: Yes, although I recognize the charge being there, I should say it should not be charged that way. We all change our minds, and various accounting systems change. I say it should have been taken care of hereafter this other way. This item we all recognize, but how to charge it off or how to take care of it is another matter.

Whenever you find that certain information is given to you that leads you to feel that you can interpret what the meaning of brokerage is, depreciation, going value and things of that nature, you are going to change your mind.

Commissioner Newman: What is there in this case about these brokerage charges that differs from brokerage charges in the Chicago case?

Mr. Palmer: That is a valuation in a rate case, based upon an original cost basis. Under hypothetical conditions such as this case, it is a fair charge against brokerage.

It is my belief that it should be set up as a proper charge and capitalized on that basis. If it wants to be written off for the 50-year period it could be treated that way.

No question about the reality of the expenses or the legitimacy of the expenses.

It is an expense that certainly has to be repaid.

The only question in the witness' mind was how it should be repaid, whether amortized or through capitalization.

I would consider a comparison of all three would be the best, that is, if time would allow it and the cost was not too excessive. I would say a combination of all of them—recorded cost, and reproduction cost in a rate case, and actual cost basis from the beginning to the present, taking into consideration all of your local conditions is equal to, I would say, the reproduction cost new.

Mr. Barbour: Isn't it practically impossible, in a plant that is 30 years old, to find out what it actually cost?

1023 Mr. Palmer: I know it has been that way in the cases that I have ever had anything to do with. I know that the City of Chicago could not tell what the actual cost of everything there upon the cost of construction would be upon their plant as a municipal plant.

In that case they accepted the valuation which had been made by H. H. Byllesby & Company of Chicago for the company with certain exceptions.

We went into it and studied it. I had an expert engineer and an expert accountant from the Comptroller's office on those books for some six months going into it quite thoroughly as to the proper rates to charge the consumers.

1024 Depreciation—Palmer.

The witness believes that the accrued depreciation should be deducted if your plant condition is below normal. If it is in 100 per cent operating efficiency, no.

Under certain conditions, he believes that cost of property which has gone out of existence should be allowed in all fairness to companies that had not paid upon their investment a fair return.

To be fair to the consumer as well as the investor, you would have to take all the factors relating to the past history of your concern which you are dealing with, every factor that goes to make up that concern, what has been its earnings, what had been its cost of operation and so on.

We assume a fair return; under those conditions you have got to have these other factors which will allow a man of experience to use his judgment on it. It depends upon your local conditions or everything that has gone to make up that plant throughout its life.

I do not believe there is depreciation in a 100 per cent condition plant.

1025 Preorganization Expense—Palmer.

Preorganization expenses, which we have here at $25,000, should be an amount that is set aside for figuring out and aiding in the establishment of definite plans on which the property is to be constructed,

and in the checking up of your local conditions, your local feeding conditions, your local load conditions, your local factors that will enter into any problem on which a statement is made under circumstances of supplying service to consumers. Permanent organization is permanent organization that will carry on the operation of your system after it is constructed, and permanent organization that all companies must have in order to operate. Legal and financial expenses means the financing expenses involved in checking up your promoters' reports and the man that would introduce a proposition to a banker. The banker or broker sends his report or consulting engineer to report upon a project that is shown to him by a promoter of the project or conceiver of the project, and it involves expenses incurred by the bankers or the men themselves in going to look over certain properties.

Mr. Almert has treated each of these items separately. I did not so treat them and I believe that all of those could be knocked under one heading; that is, including various items, and the amount of two and a half per cent should be allowed as a fair and reasonable amount for those items; two and a half per cent on the item of $13,127,077, which is our base; and no portion of this expense is covered in any preceding item. It is his belief that two and a half per cent is a fair and reasonable percentage to be added for those items. These expenses to this point give a total of $15,146,642.

1026 Commissioner and Brokerage—Palmer.

Commissioner and brokerage is to cover the amount which is ordinarily allowed for brokerage, in cases of expenses paid to financiers, underwriting or carrying the project out from a financing standpoint.

There is no doubt that such expenditures would have to be made in providing the funds to reconstruct such a property. 4½ per cent as applied here is fair. As to how an item of this kind should be dealt with, is merely a question of judgment and policy. There is no doubt about the necessity of incurring the expense and that the builders of such a project would have to pay it, and they would have a right to get it back in some way.

1027 Interest During Construction—Palmer.

Interest upon a six per cent basis and covering an average of two years in which that interest would have to be paid, because it is a four-year construction period, and figuring that the installation would be made uniformly from the beginning would make the figure twelve per cent. But studying into the manner in which Mr. Almert's figures have been based, I took that same amount of 11.32 per cent, which I feel is very fair.

Figuring the uniform basis of construction from the beginning of the construction period for four years, and figuring also that the money is being supplied only at the time you need it uniformly throughout your period, on that basis it will figure six per cent for two years on an average. If you have a straight line up like that

(indicating), that would be your interest charge. Assuming you can get your money at the same time that you do your construction, that is twelve per cent, and I say that 11.32 per cent is conservative for that if twelve per cent is the basis.

I have not assumed that any part of the plant is going to be put into service until the expiration of the four-year period.

If you provide your capital and put it aside, you are going to get a certain amount for your fund that will be applied against it. If you have not your total fund to complete your work, the total fund for the completion of your work during the four years at the beginning of the work, but that fund is supplied at the time you start your equipment and the construction is made, the twelve per cent charge on that six per cent basis of interest is fair over the period of four years.

1028 Construction Period—Palmer.

It is my belief that your five-year period is a minimum reasonable period. I could not very well support the contention that a three-year period is a reasonable length of time to install a project of this nature, and it is very usual for this item of interest during construction to be covered by interest on the entire expenditure for half of the construction period or on half of the entire expenditure for all of the construction period, and if you arrived at it in that way you would get a larger sum than arrived at by this method.

1029 Development Cost of Going Value—Palmer.

I consider that an amount should be allowed in a reproductive value of property which will cover such items as good will of the company, which is known to me as "going value", and can be also considered as a development cost. In the Chicago cases it is supposed to be good will and also going value. It is an amount which would take care of the good will of the company—development of the good will of the company; the costs that would be incurred due to developing the good will of the company; and we all know that it would take a certain investment which, producing interest, would take care of certain expenditures that would be carried on, to develop the business, which would not show in the physical property.

For instance, it is my belief that during your development period you have certain costs, and those costs are not met through the returns from your operating company until you get your company operating on a basis that gives a fair return on the total valuation of your property.

Now, that is during a period of construction of four years and the development period of five years. You start your plant at the beginning of the third year, and that means that you operate it during two years of the four years of the construction period, and three years of the development period. During your first three years and your fourth year, you will have, through your early stages of development, little return and quite big expenditures.

Now, it is the combination of those various items that I would say an allowance should be made for in the reproduction valuation of a property based upon an account, similar to what I have assumed here, of 12½ per cent.

You cannot separate the item into several parts, any more than you can say that you have got a standard on which you can separate them. In one city it might be the acquiring of the good will of certain properties, like in Chicago. We allowed an amount there of, as I remember, free wiring, because during the development period they had to free wire homes in order to get the business. They carried along the free wiring amount and capitalized it.

It is an estimate, but it is based upon very many decisions which we have found average in the neighborhood of 12½ per cent, which has been allowed in recent rate cases.

Witness does not know where good will and going concern will separate. He has heard of it as going value; as development cost; as good will, and intangibles; but part of the intangibles is the going value. But there are those two costs, I believe, which would have to be added to a physical property to obtain a fair and reasonable cost on a reproduction basis.

You spend a year's time in the development period, and you have got some good will. You spend the next year in construction, and you have some good will. At the end of your second year you have additional good will. Now, you develop up to the period of 5 years of development or 4 years of construction, at the end of which you have the good will established.

Compute it upon a basis which your judgment says is correct under the circumstances as you know them. In other words, here is a list of twenty cases which show an average of 12.53 per cent as an average of going value of the physical property.

The list of cases above referred to as follows:

City.	Year.
Dubuque, Iowa	1898
Sheboygan, Wis	1900
Quincy, Ill	1904
Omaha, Nebr	1905
Lake Forrest, Ill	1905
Fort Smith, Ark	1908
Knoxville, Tenn	1909
Sterling, Ill	1909
Des Moines, Iowa	1910
Davenport, Iowa	1910
Macon, Ga	1910
Council Bluffs, Ia	1910
Freeport, Ill	1912
Le Mars, Iowa	1913
Richmond, Ind	1913
Texarkana, Ark	1914
Charleston, S. C	1914

1030 This item is intended to cover the real expenditures of real money. It is not an estimate as to value, merely, it is intended to cover money spent by the company to get this business and to get the business to going; and that element you can designate as going value, development cost or good will, or whatever else you may choose to call it. That is the main idea.

These figures aggregate $19,822,498, but do not deal with the Great Falls water power proposition at all, and the witness has not undertaken to put any value on that property.

1031 He had also made the following statement:

"The allowance of a reasonable return upon the capital value, as determined by appraisal of the property resulting from proper expenditure of capital funds, cannot, therefore, be based even in part upon a value which cost nothing but obeyance of law and respect of rights, and which value arises solely from the opportunity of serving the community. In the case of the Commonwealth-Edison Company there is no evidence in the company's or city's records that a payment was made for franchise privileges; accordingly no allowance for franchise value is made in this report."

1032 Cross-examination:

Development Cost—Palmer.

Mr. Syme: Do you know the conditions under which, in any one of the fifteen cities you have mentioned, the different development costs were allowed?

Mr. Palmer: I have not studied into them thoroughly. I would not say the consequence is that you are comparing an unknown condition with fifteen or twenty other unknown conditions in arriving at a fixed figure. I would say I am comparing statistical data derived from settlements by public service commissions pertaining to a certain subject and by court decisions pertaining to a certain subject, and upon those I am basing my belief that an average of those rates is a fair basis upon which most all engineers base their calculations if they expect to be fair and reasonable.

Witness first saw Mr. Almert's report about six days ago in New York City. Mr. Almert brought it. I went over the report and read it. Mr. Almert had it. Came to Washington Sunday.

His knowledge with reference to the property is not confined to a study of Mr. Almert's report; has looked over the map as to the location of its properties; has seen the lighting system here; has heard considerable said upon what a fine series lighting there is here—information given by Mr. Almert.

What he knows is what he got out of the report; what he found by looking at the map, and what somebody told him; as much as a man would get in four or five days, or three days' time in a city, in studying into a situation of this nature. Came here Sunday evening. In the city three days.

Witness does not know from personal knowledge what the per-

centage of efficiency is of any substation or its apparatus. He knows the posts are pretty nice. He knows that they have some good buildings, and they look pretty well kept up from what I have seen. I have looked at your poles and inside system. I always take a great deal of interest in doing that wherever I go, but he could not and would not testify as to what the percentage of efficiency was in regard to any portion of the business. Knows nothing about it nor about the history of the company, nor the conditions existing in the City from 1880 to the present time; and his judgment is not formed upon any knowledge of the conditions in the District of Columbia under which this hypothetical plant was to be erected, except as to what he has seen since he has been here—that most of the work is underground, instead of overhead.

1033 Unit Cost—Palmer.

He assumed Mr. Almert's unit cost to be correct, and if these unit costs were too high, the first basis on which he made his calculation would be decreased proportionately, and if too low would be raised. The integrity of the inventory as to material and the integrity of the adopted prices as to cost would effect, to a greater extent, in so far as it might be erroneous, the final conclusion.

The size of the plant does affect the size of the percentages.

If Mr. Almert's report and this original cost had to be reduced, then his percentages would not necessarily become untrustworthy. Some of them would be subject to change; not necessarily all of them.

There would be no difference in your percentage as to detail engineering, omissions, contingencies, insurance or general contractor's profit. If the construction was small enough, your general contractor's profit would go to 12 per cent. If it was a small piece of work and you picked out an unreliable contractor, you might have to pay an additional amount.

The preliminary operation and adaptation expenses of the property would probably increase if you reduced your plant in value. I am speaking of percentages. If the value of your plant was reduced, your other items, compensation to conceiver of the project, etc., would be increased in percentage.

You would have a percentage which would equal just as much. This is a sum of $650,000, which should be allowed, perhaps, against a plant half the size or one-twentieth the size. It is a plant which should be allowed against a plant of that nature.

It is not necessary, just because your plant is halved, that you are going to double your percentage, because you may reduce the total allowance half.

The percentage for commission on brokerage and interest during construction would remain the same; development cost would be increased if you reduce the value. Does not know how much the increase would be.

Witness has allowed nothing for entertaining people and for

interesting people in the item for "Legal Organization and Franchise Expense."

"I imagine there are expenses like that. I know we used to have them in White & Company, to pay men to take people out and interest them and show them projects; and the expense ought to be charged against the project, in my belief. There might be an item allowed under those conditions.

The witness thinks that the expense of negotiating for and securing franchise is a proper consideration for which either the money of the company should be spent or its capital stock issued in the reproduction of a hypothetical plant in the City of Washington.

1034 Depreciation—Palmer.

No definition has ever been made to fit the words "accrued depreciation," and the word "depreciation" especially. I know what it means myself. It means, renewal, replacement and contingencies. Those are the terms that I can deal with very much better than depreciation, and those are the terms into which he translates the word "depreciation" as used in a rate case. They are very much easier understood as terms explaining what depreciation means.

When you buy a unit for the production of electric energy, you buy a certain total unit capacity. It does not, however, extend necessarily over a term of years. It might be a month and then it would be wiped out.

Does not consider there is any limit on a unit of that nature as long as it is in existence. Whether it is transferred, after twenty years, from one plant to another, or sold to another firm and operated there for another twenty years, and is kept in 100 per cent condition and shifted to the next generation and the next generation, the plant is still there unless something comes along to wipe it out, whether it is fire or what we might call contingencies or inadequacy or obsolescence, or whatever you might call it. No matter what it is, that plant will stay and probably be traded. The very first Edison machines, the old bipolar machines, are somewhere in existence today. They are in laboratories today and operating and carrying lighting loads.

Service life of a generator—one might be ten years and another might be twenty-five years; I cannot say what is the service life of a generator.

You can base it upon a theory and figure out a service life for the use. It has been based upon theory. I have done it upon theory. We have theoretical curves drawn to show what the life of the different elements is. A small generator might have one life and another one another life, all depending upon the circumstances. If you overload that generator for three months, and keep overloading it, you will find that your insulating strength will be different than if you are running with a light load.

Based upon past history you can assume certain things, and then base your figures upon averages and assumptions. You may have

plants and generators operating that have been in service since they have been put out of the machine shop for the next generation or the second generation.

(Pages 4844 to 4859, inclusive, will be found set out at length — the report of Byllesby & Company to the Commonwealth Edison Company of the result of the valuation of the property of the Commonwealth Edison Company by H. M. Byllesby & Company referred to by Mr. Palmer in his testimony and which was accepted by him in the rate valuation of the Commonwealth Edison Company of Chicago—which either party may make special reference to as may be necessary.)

1035 CHARLES GRIFFITH YOUNG testified on behalf of the company on December 20, 1916.

He is 50 years of age; born in Western New York; now in business in New York, and resides in Yonkers.

Is a consulting engineer; office, 15 Wall street.

Educated in the high schools and graduated from Haverling Academy, Steuben County, New York, in 1885.

Worked with the Schuyler Electric Mfg. Co., in Hartford, Connecticut, being two years with them, 1886 and 1887.

General superintendent of the Mt. Morris Electric Lighting Company in New York City from 1888 to 1892, and was engaged with J. G. White & Company for sixteen and a half years, from 1892 to 1909, since which time he has been in business for himself.

Is a fellow of the American Institute of Electrical Engineers; an associate of the American Society of Civil Engineers; a member of the American Electric Railway Association; the New York Railroad Club; the New York Electrical Society; a member of the National Electric Light Association.

He was engaged with the Schuyler Company in the manufacturing end. The first year he had to do with the manufacture of all classes of electrical apparatus.

He was then sent out in connection with the installation of plants, central stations and isolated plants for electric lighting and power purposes, and was used as an expert very often in getting properties out of mechanical and electrical difficulties.

While with the Mt. Morris Company from 1887 to 1892, he was general superintendent—That was the development period of electric distributing systems, and we were very successful in installing systems that are still in use—which gave him experience in operating and in the construction of both overhead lines and in power plants and underground cables, and especially with the difficulties in the pioneer period.

His experience after that with J. G. White & Company was largely in construction work. During the first fourteen years he handled all of their bulk contract work or fixed price work and some percentage work; but since that time they are now handling altogether percentage or fixed fee work.

A large amount of his work was also in connection with examinations of proposed undertakings, propositions that were brought in by promoteres or financing groups that wanted to determine the advisability of going into this or that field for establishing electric lighting properties, electric railways or other utilities, including hydro-electric propositions. Has been very successful in making reports, including estimated costs of construction, gross earnings, operating expenses and net earnings. Has had an opportunity to compare his estimates with the result, and in 153 cases checked up two years ago, involving $300,000,000 of construction work, in every case the earnings were equal to his estimate.

His field of experience has been rather large. He was engaged for one year during that period with J. G. White & Company, Ltd., which took him to foreign countries. His experience covers United States, Canada, China, South America, Australia, Japan, the West Indies, New Zealand, Siberia, the Philippine Islands, the Hawaiian Islands and parts of Europe and all branches of construction work.

Has had actual experience not only in construction but in financing, and consolidations and reorganizations of utilities of various kinds.

When he first went with White & Company they were located in Baltimore; that during that time was called over to Washington a couple of times in connection with installation of underground conduits.

Had a contract for some of the underground conduits of the Potomac Electric Power Company; that is, J. G. White & Company in the period from 1894 to 1898.

During that period they also built the City & Suburban
1036 Railway Company's extension out to Berwyn, and afterwards an extension further from the northeast section of the city for Mr. Kesley Schoepf, who was president and manager.

In 1889 he secured the contract to carry out the construction of about 50 miles of electrification in Washington and suburbs, including Georgetown and Tennallytown, Rockville, and the Brightwood lines, some extension on the Benning line and reconstruction work on the Great Falls line.

Most of this work was a unit price for which the company paid so much per unit. Some of it was a lump sum, and on some of it we took the risks as to quantities. Some of it was cost and percentage. He was here at that time practically a year. He frequently had been over to Washington and has been here since that time.

J. G. White & Company now accept contracts only on the cost plus a fixed fee basis, because their business became so large they were obliged to control it from central headquarters, and on large contracts it was found that it was more advisable for the owner and for the banker and also for the contractor to work on a fixed fee or a percentage basis. When you work on a fixed cost or a lump sum basis, the contractor has to add on a large percentage for contingencies varying all the way from ten to twenty-five per cent.

That is where he takes the risk of all kinds of contingencies in the construction, in prices, in the labor market and everything.

He has had an opportunity to familiarize himself with the Great Falls Power. Some years ago he made an investigation of that power and was familiar with it at the time. Understands that it is today as then—undeveloped.

He has been requested to examine the summations of Mr. Almert's report referring to overhead cost or overhead charges.

The summaries beginning with page 7 and continuing on page 9, continuing on page 44, and continuing on page 99.

Has read Mr. Almert's evidence in this case. Understands in a general way the method he has followed in compiling report. Does not undertake to testify as to the accuracy of the unit prices or the labor and material prices. Has not had time to go into all that detail. He has considered the overheads and the directly distributive costs. That he has added to labor and material and he thinks the allowance for design, specifications, 5 per cent, omissions and contingencies, 3 per cent, insurance, 1.5 per cent and general contractor's fee, 10 per cent, are reasonable, and such as would have to be incurred by any company reconstructing such a property in addition to the cost of the labor and material. They are an integral part of the cost of installing the physical material and labor, and become a part of the direct physical reproduction.

His statement is based on the assumption that no part of this cost, though, is included in the base cost which he assumed. He looked back in some cases to see that there was no general included, and they have included the general in a specific item set forth separately.

He considers this as a part of the detail and that with this addition constitutes the base cost. He does not consider mere raw materials base cost. They are not overheads, in his opinion, though Mr. Almert calls them overheads.

If I am an owner and want a house built, a part of that cost of the house to me is what I pay for it. It includes the architect's fees, contingencies, the insurance during construction, and the local insurance, which is rather severe now under the present laws, fire insurance and all sorts of insurance, and general contractor's profit of 10 per cent, which I regard as nominal. These are overhead charges in addition.

Whatever you can distribute directly, the witness does not call overhead. Our expenses would go right into the cost of the work as a contractor. It was his cost to him.

The basis for the contractor's 10 per cent is his experience which will save the owner at least 10 per cent.

It was based on labor and material; all costs that come up to the general contractor and which the general contractor has to pay; includes architect's fee and insurance during construction, if he has to furnish all of that, and we add in contingencies; that is not all profit to the contractor, because the contractor has the organization. His only general expense that he cannot distribute is probable cost on a 10 per cent estimated base, and he will do very well if he makes six

or seven per cent. He would be responsible for the architect's fee because all that detail work has to be done, and unless the company does it some one has got to be engaged to do it. The company would have to organize a very large force and get trained men, who cannot he obtained unless they are regularly employed year in and year out. That is what an architect's office is for, and that is the reason they ket the work. Their regular fee is five per cent for very nominal inspection, but not enough inspection to satisfy a real business concern.

You can get an architect's service for three per cent if you do your own inspection but witness would not want that kind of an architect.

Five per cent is the regular fee*l* of the American Institute of Architects. When there is no inspection they call it supervision.

He visits the property very casually. He does not go into the details like the company's engineers go in because they are always going to have that property. They are going to see that they get everything right from an operating basis. The architect is interested, of course, but he is primarily not interested to spend any more of that five per cent than he has to.

The contractor does not get any of the architect's fee but he is entitled to 10 per cent in my opinion.

Mr. Barbour: Assuming that these costs, the direct, cost of the labor, material, contractor's fee, and these other direct*ly* costs to which we have referred, aggregating the sum of $13,127,077.32, could they be said in any sense to represent the cost of the reproduction of the property of such a company as the Potomac Electric Power Company?

1038 Mr. Young: It is a part of the cost. Additional expenditures ordinarily known as overhead charges would have to be made and met by the company in order to reproduce its property. They cover engineering, supervision and inspection.

I have taken Mr. Almert's allowance and studied what he has taken in each case. As he has made them they are listed on page 7.

1039 Engineering, Supervision, and Inspection—Young.

Referring to the item of Engineering, supervision and inspection — $135,000. This is organization that will be maintained by the company who have to determine what they want, to make the investigations to determine that, to supervise in detail the carrying out of the work, changes, etc., that may come up from time to time, and the inspection of materials and all completed portions of the work, and also all uncompleted portions as it goes along.

He has examined the detail under that heading to ascertain the justice or propriety of the basis upon which he arrives at that sum, and in his opinion, the amount Mr. Almert *taken* of $30,000 a year for four years, plus $15,000 for preliminary work, is rather small, as the cost of the first year's work of engineering will be fully that of the succeeding years. This amount of $135,000 is equal to

1.028 per cent of the base price of $13,127,077.00. Regards this as a very reasonable estimate of what it would cost the company for proper engineering, supervision and inspection.

1040 Construction Program—Young.

The propriety of these charges would, to some extent, at least, be controlled by the justice and fairness of the construction program as outlined by Mr. Almert, which the witness has examined and thinks that is the shortest possible time in which a plant of this size and character could be properly constructed and installed and put into operation, because it is a very large property. There are restrictions in the question of opening streets that will limit a contractor, and the question of getting material and labor. If you attempt to do this in a shorter period your cost of construction would increase considerably * * * you could not develop a load during that period for a plant of that size. It is physically impossible to develop a load during a five year period, that is, a load of the size of the business of the Potomac Company. It takes time to develop and to secure business in any city.

During construction work there are periods of the year when you would be held up on your work. There are about four months of the year when you are interfered with. I would not consider it an economical construction program. Of course, it can be done. I built an electric railway once and had in operation the cars and erected a generator in 22 hours, but it cost money. It had to be done on account of the expiration of the franchise. If he was just turned loose so far as money, men and material are concerned, he could do it, without regard to expense. They had to take special train to take the laborers in, and to feed them on the work. You would have to obtain materials from different parts of the country, and they would have to be gotten there. In a case here in Washington we were called in to construct a railroad in ten days, one of the extensions from the northeast out to Berwyn. We had a force over in Baltimore. The work we did that year in 1899 was only done because we had to bring an enormous organization from Baltimore over here to do it. We could not get enough labor here in Washington to do it. So it is my experience you could not do it economically—it would be extremely uneconomical.

1041 Administration During Construction—Young.

In this case the allowance for salaries is too low, but if the operating property assumes a part it would probably be about right. It amounts to 1.371 per cent of the base, and I think that is reasonable.

He has examined the detail as to how the staff is made up. He does not think you can hire men for those rates unless they used part of the time and part of their time is charged to something else.

1042 Interest During Construction—Young.

Mr. Almert has also included as the next item of the cost the sum of $1,791,644, under the heading of "Interest During Construction."

Witness didn't go into the detail, although he saw Mr. Almert's calculations; but took the case of a four year construction period doing it uniformly. Of course, it is an advantage to do it as uniformly as you can in order to have your construction force more or less economical. That would be the interest at 6 per cent approximately for a two-year period. The interest at 6 per cent for a two-year period would not be unreasonable.

The assumption that no part of the plant will be earning a return until the expiration of a four-year period is taken care of in development period.

He does not believe the plant would earn enough to pay interest during the first two years' operation. It is based upon the assumption that there will be no return until after the expiration of four years.

This basis of mine would be 12 per cent; Mr. Almert has taken 11.32 per cent.

1043 Preliminary Operation and Adaptation—Young.

An expense of this kind is necessary because it would be foolhardy and a very expensive proposition and very unsatisfactory, as well, to start up any new plant directly upon its load. The expense would consist in an outside technical staff, which would cooperate with the nucleus that has been gotten together by the company for operation, and it would include the cost of operating a plant and the different parts of the plant before the different units went into operation for regular service for periods of from ten days to a month, perhaps. In one case, witness had to have the current on the bank of transformers in substations for a period of over 30 days, and discovered that there was some water in the oil, and he had to change the oil, and had some breakdowns. Some coils had to be renewed; that all takes time and is an expense, because this apparatus is tested at the manufacturing plant, and the things that happen to it are generally accidents in transportation in the way of physical injury or weather conditions. This involves not only transportation but erection risks. You are liable to drop some plant in hoisting it into place, and very often a unit has to be taken entirely down and taken entirely apart to renew a coil or some other part of it.

Numerous other instances are cited by the witness.

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Pole lines have to be tested. Insulators have to be tested. In fact, every part of the plant, including the substations, switchboards and everything, has to be tested, and very often taken apart and adjusted or renewed by replacements before it is put into regular service. I think the $50,000 expense is a reasonable allowance.

1044 Stores and Supplies—Young.

It is necessary for any operating company to have a good supply of stores and supplies, coal, oil, etc. on account of difficulties in transportation sometimes and increased cans for roads and for repairs and maintenance in the regular operation of the property. They are a part of the necessary equipment of a plant just as much as the machinery * * * just the same as having an extra unit in a power plant. You are required to have a spare unit and required to have repair parts otherwise your property would be shut down at times waiting for repair parts. I notice that Mr. Almert has taken an average of three years' stores, of the coal, oil, etc., making up this item, and it is less than 1 per cent. I should say it is a moderate amount to allow for stand-by service. It is what they have been actually having, and certainly they have not carried more than is usual in such cases.

1045 Working Capital—Young.

It is always necessary for an operating company of this kind to have a good capital. They have their pay-rolls and all their bills to meet, and it is probably a month and a half, or perhaps two months, from the time of their expenditures until they get them back in the way of collections. It is necessary for the proper operation of such a plant.

I know of quite a number of companies—there was a company over here in Baltimore that had very serious difficulties. They had allowed so much in their construction program and had not allowed anything for working capital, and it was only by very good fortune that they got a banker interested in it afterwards, and he came to their rescue by giving them a very large participation and supplied the working capital. If they had had that in the beginning they would not have had to sacrifice their property.

It is also necessary to have for an electric lighting business in any growing community a large amount which is needed every year in extensions of service, house connections, lamps and the extension of the business and regular improvements and changes in the art, and it is sometimes 6 months and often a year, before that is refunded. Taking it on the basis of 6 months, I think that is a reasonable period for refunding such expenditures. Then there are contingencies that happen. They might have a fire or a breakdown so that you would have to have immediately large funds available, that is, a reasonable amount. I think his allowance of $50,000 is very reasonable for the contingencies, and the amount on deposit with the banks, I think, is not adequate. I do not think you will get the right kind of banking accommodations if a company of this size does not have a balance of more than $50,000. So I believe instead of $373,296 as working capital it should be in excess of that, possibly up to $500,000, for a company of this size having gross earnings of $2,500,000 approximately.

Mr. Almert allowed for one and a half month's operating expense, $122,315, and six months' construction expenses, in addition to these two sums. They aggregate $378,396.71. But in his judgment, $500,000 would be a reasonable capital, a part of which would be used for sales of long-term payment electrical apparatus.

1046 Legal Organization and Franchise Expense—Young.

These expenses are absolutely necessary, and it is absolutely necessary to have franchises. They are necessary and essential expenditures to be made. The amount allowed is $262,542.

This amount only figures out in percentage 1.64 per cent of the base cost, but I prefer to regard that as an expense, you might say, per year. Taking an estimate of $50,000 per annum for legal organization and all of the work required to get the consents and franchises and carrying on the business, I think it is reasonable. For a five year period that would amount to $250,000, and I think the excess for preliminary legal work is reasonable, and I would say the rest of it would be a very nominal expense, $12,542; in fact, it probably would not cover the expense.

1047 Financing, Expense of Negotiation Only—Young.

An expenditure of that character is very necessary. It is work which is done by a promoter, and for a property of this kind, I am confident the preliminary expenses that Mr. Crosby had in this matter were very much larger than that; in fact, it is always necessary. It is all a risk, too. It is an expense that would have to be met ultimately by the company. It is first met by the promoter, and then ultimately he is repaid back that out of what is paid to him or a separate allowance is generally made for his out-of-pocket expense, and then on top of that he is allowed a certain amount. This is entirely separate. This is all expense and no profit.

You have got to have preliminary examinations by people such as myself, a number of different ones, in order to get every angle and every viewpoint of the properties, the probabilities of it, reports and confirmations by independent investigations made by others. Then you have the cost of printing prospectuses and the expense of extended negotiating for financing, traveling and all of that.

The amount—$60,000— seems very reasonable. I would be glad to get off with that amount if I had a prospect such as this to investigate.

1048 Compensation to Conceivers—Young.

This is a very essential expense and a very just compensation, because no one likes to undertake that. Instead of calling them conceivers I have always known them as promoters. That is the more gentlemanly name to call them. They do not like to be called promoters, but it is promotion. It is the man who has the ability and has the breadth of view to see a situation before it has been accom-

plished, and he has got to be a guesser, and has got to have experience. There is lots of money wasted in such things by those who do not know how to accomplish results.

He has got to be a man of standing, enough at least to put all of these preliminary expenses that we have been speaking of before—$60,000—and he is spending years and years on the work. I know of a man who is trying to finance a proposition, and he has spent 10 years on it. It is a hydro-electric proposition right in the City of New York, right where power can be readily sold, and another man I know has spent, that is, he and his friends, over $1,000,000 on this. They are entitled to compensation on their work. There are great difficulties. You get into all sorts of difficulties. That is one reason I have never been willing to be a promoter, because I have seen too much of it. It is all risk. For every dollar *O* spent I would want to get $100 in return, or at about that rate. That is what every promoter ought to get, but he doesn't get it. As a rule he gets about 10 per cent. That is customary. A promoter ought to get at least ten times what *h*r actually spends, because what you spend on traveling, etc., perhaps is not one-tenth of what you receive for your services. I don't know. I am just saying it is all risk in this case. I did not base it in proportion to the amount he spent, although that is a very great factor, because it is all risk. He has not only risked his money but he has risked his time, while he could have been making money at other things. It is worse than a gambler's risk, and that *it* what has kept me out of it, seeing twenty-five years of it. I did get into it away over in Siberia.

Who is going to take this chance? Who is going to have the foresight to conceive the project. You can conceive on lots of projects that will not earn money, but it is the idea of conceiving them far enough ahead. I know in this case they had very great difficulty in getting the money.

Mr. Barbour: Do you know anything about this particular case?

Mr. Young: Yes, Mr. Crosby was a partner of J. G. White. It was known as the White-Crosby Company at that time, and at the time that Mr. Crosby conceived this, in connection with other men, and came over to Washington he wanted the company to take it up as company business, but they could not see it. The White-Crosby Co. So he got other outside capital, and he had a hard time getting it. I do not know what he got out of it. I do not know the deals or anything about it, but I know it is customary for men to get 10 per cent.

I notice that Mr. Almert has in his figures only 4.82 per cent, and for that reason I think it is much less than the average that would be received.

That has gone in as part of the expense. The company cannot be established without it. Some one has got to do that work. It will not do itself. Sometimes it is done by attorneys.

It is always a necessary expense. I have never known of a situation that has ever been taken up and promoted that did not require it.

Expenditures of this kind will be necessary to reconstruct a plant

just like this here, whether there are other utilities here or not. I do not know of anyone who would attempt, for instance, to start in to get a competing company here. If they were successful in getting the money for it, they certainly would be entitled to all of it.

You would have to sweat more than blood. In fact, they get 5 per cent often where they combine properties, going concerns that have earnings, and all that. The man who does those things and gets the options on companies and puts them together, conceives of the idea and also conceives—what he is doing is only a part of what the savings will be in duplication of plants, etc.,—and he gets 5 per cent compensation for reorganization.

On a reorganization today it would involve a different type of man. He has got to be virtually a banker or be representing a group that would have unlimited capital, because there is no use in getting options on the property unless you have a group back of you with sufficient capital to back it up. He certainly would require bigger compensation than we have been discussing here.

1049 It is a big educational work. He has got to spend years on it to work up the business interests, to see the consumers and to secure the franchises, and also to interest the capital.

The amount—$650,000—allowed is reasonable. It does not in any way overlap or comprise the expense provided for in the preceding item of $50,000. One is investment account and the other is profit. It is for compensation for the services of high grade men. That all does not go to the promoter by any means, either. No one man can do everything. He has to associate other people of the same grade with him. He needs a good deal of cooperation to do a thing like that.

1050 Preorganization Expense—Young.

That is a necessary expense, undertaken by the men who would form the company—not by the promoter—the people who are interested and who would incur that expense in their investigations before actually putting the whole capital in. That is a very nominal expense; surveys, reports and estimates, $20,000; field and miscellaneous expenses, $5,000; total, $25,000.

They are supposed to cover actual out-of-pocket expenditures, and the reimbursement of those actual costs; no compensation.

The amount is reasonable. I have a case right before me now where certain people want me to organize a company and do certain things which would involve an expense of that nature beforehand, before I would be willing to undertake the part they want me to do. The promoter has had certain expenses and done certain things. They know where they can get the capital, but want me to make certain investigations and organize a company, so as to take over what the promoters have developed, the contracts they have secured. It is not a promotion; but it is a preliminary organization, say. It is in the nature of a re-examination and checking; or confirmation or checking up of the promoter before going ahead with the actuality.

1051 Brokerage and Commission—Young.

It is always necessary to form a syndicate and to get the syndicate managers in a nucleus, who will secure the final subscription. For that they always receive cash compensation or compensation in securities. I would say that the total compensation which would be right to allow them for work of this size, as estimated by Mr. Almert, $700,000, would not be exorbitant. Probably half of that would be in cash, taken out of the cash subscriptions, and the other half would be the equivalent of securities that would be assigned to them. It has been customary right along. The amounts vary. I notice Mr. Almert has them here ranging from 2½ to 10 per cent. He has actually taken 4.396 per cent or, rather, an amount which equals 4.39 per cent, for a total, I suppose, of compensation, however received—cash and other securities.

That item represents the amount which must be paid to the syndicate managers for their work in getting banks. No one bank takes all the risk. It requires a syndicate manager who will get up the group, and they will invite all banks to join in the group. Until they got the underwriting completed by responsible people, nobody would be justified in going ahead. It is absolutely distinct from any discount on securities due to lack of belief in the full stability of the project. It is a commission to the banker for getting the money, in other words. He do- not supply the money for that, you see; he gets subscriptions to it. He induces other people to subscribe, and probably subscribes to a large amount. In fact, he would have to in order to give faith in the project.

I would not use the term "middleman" in that sense. It is a necessary evil, so to speak. For instance, a man who is not know- in the business and is not in a position to get that, and advertises bonds to the public,—the public does not know him, and does not subscribe. It seems easy to put an advertisement in the newspaper, advertising securities. Sometimes they make glowing descriptions of mines, and so forth. It has to be very, very attractive. The people subscribe, and other bankers come in, and they say, "Have you investigated this," and he says, "Yes, it is good." If he makes a slip, it is never forgotten. It is paying a man for the work he does. I do not know of anybody who does work for nothing.

It is always done. It is even necessary in placing government securities. You would think that foreign securities would be placed very readily, but they have to be underwritten. It is a very sentimental thing. Money is very flighty. It is very easy to scare it away. It requires the cooperation of substantial bankers in a matter of this kind. I am sure there must have been very substantial bankers in this instance, in order to get the underwriting done.

There is no question that men who do that work earn their money and are entitled to it. They do not do this thing every day. They might do this once in two or three years, maybe. They do not do it right along. Often it takes time to digest the securities. Those people have got to get them to the public. When the public does

not take them, they have to hold them until they are taken. Very often they have to be held until the plant goes into operation. Very few of the bankers will do that. That means financial indigestion, and they cannot take on more than they can digest. So, they have to wait and wait. I have some very reliable bankers who cannot take up underwritings in less than three years.

This does not include discount on bonds. That amount would vary according to the times, the attitude of the public, and also the spirit of the local community. If they were being hammered like lots of the electric tractions are over the country, you could not raise a dollar.

If they are allowed to earn a good return—in other words, I believe in cooperation—if that is true, there is no trouble at all to get all the money that is needed.

Have to go to private bankers, who would risk their own money, in order to get the money.

1052 Development Cost—Young.

Development cost, I think, is an actual state of conditions in any property and, therefore, ought to be allowed for; and they cost money, time and effort to develop and secure a load in a property like this—any property similar to this—whether in Washington or any other city. The cost of getting it—you could not get that load without an investment in plant, property, distributing system, and so forth. So, the cost of getting it is the use of that money.

Witness does not believe that it would be possible to develop the load Mr. Almert assumes within a period of 5 years, because if the plant starts operating the third year, I think they are doing very well. You cannot secure the business; you cannot work it up, and you cannot get the people to take on the business, and to develop it in that period.

I started to make, the other day, just a pencil memorandum of how it worked out, and never finished it. Starting the third year with fifty thousand gross, assuming that the next year you got 100 per cent increase, you would have then one hundred thousand.

Chairman Kutz: What?

Mr. Young: Dollars of gross earnings; and you would get $100,000 the fourth year, and then estimating 75 per cent—that 100 per cent would not be kept up, probably, right along—75 per cent the next year would give $175,000. The sixth year it would be $250,000, and then going down to about 25 per cent, which I understand is approximately the present rate of increase. Now, the property will not continue at that rate. It will go down and keep going down.

You have a gross now of two million and a half, I understand. So, they have to go on for a period of years from this fourteenth year, and that is about the way it works out in practice. By extraordinary effort, you can reduce that. In the light of the practice to-day, they would spend more money in getting this business and getting it sooner; but I think that if they got the total gross in fifteen they would be doing very well indeed.

So, we figure the deficit based on the difference between a fair return of 8 per cent in the beginning—I am taking Mr. Almert's figure of 8 per cent as fair;—I am not making the caluclation myself—and the actual net return during the first few years of the plant. The first year probably it would not pay operating expenses, and then would gradually get up to pay operating expenses and part of the interest. It will take many years to work up to the 8 per cent.

Now, that deficit in there—that accumulated deficit carried forward—is not carried forward with interest compounded up to date, or anything like that, but just carried forward for the five years that Mr. Almert has got in there. If we had to continue that process over the five years, it would amount to more than it is.

So, I think the estimates he has made is reasonable.

Estimating it in another way, however,—his estimate amounts to $2,115,323 for developing the business—I am estimating it at 12.5 per cent on $17,620,084, which is the base cost with the overheads added, omitting the development cost. That would bring an amount for the investment cost of $2,202,508.

Chairman Kutz: Do you think that development cost is a proper capital charge, even though it may be balanced by subsequent profits in excess of a fair return?

Mr. Young: That is a very big question. * * * I think it must be allowed for. You can allow for it in one way or another way. It is an amount of capitalization and rate of return. That is the reason I said I did not take 8 per cent as the fair return.

The first money to go into a plant of this kind would be problematical, and the probabilities are that the man who went into it, if he did not think the property would give him 15 per cent, would invest in some industrial in which he could get 15 per cent.

The second portion of the plant's operation, the plant having started operation and made some little showing, he has found in the meantime that the plant requires a whole lot of additional capital each year. So, he has to have increased capital each year. * * *

1053 So, the second capital that would be subscribed and put in, if it is done on that basis, would want about 12 per cent, say.

The third section, after the plant has improved in its operation and is a little larger company, they would stand to get 10 per cent; and so on down. The probabilities are that they would not get any capital into it unless they thought they were going to get 7 per cent.

Now, the average of this would be somewhere around 10 per cent. It depends. You can get capital for a large concern that is going and making good earnings today on a much more reasonable basis.

So, they have developed that today, and can get money on a less basis than they could in the beginning; but they could never have developed this plant and gotten the money for it if they had been limited in the beginning.

It has cost real money, time and effort to develop that business and -elayed returns, and all of that. While I am not figuring that you are entitled to interest on those deferred returns—because they take that risk when they go in and probably estimate an earlier future return

than works in practice; in other words, anticipation is often better than realization—they are entitled to it in my opinion. This item of development cost is the actual cost as you conceive it of developing the business. It is the difference in the additional cost between the time the plant is completed (if you can conceive of it being completed as of a given date, which is a little variation from the hypothesis), but it is the additional cost that is thereafter expended in attaching the business to the property; it is entirely additional to all the expenditures we have been speaking of heretofore, and represents the difference in the cost of the completed property as a plant and the completed property with the business attached to it; as a going concern, and it is all cost to the man who got his money in it, if he is not getting a return on it.

1054 Great Falls Power Site—Young.

If that property had been developed it would have been included in this base. Probably not the same base, because the plant would probably not be developed until the market had developed here large enough to warrant its immediate use.

The figures discussed down to the present time in no way involve the Great Falls water power site, and in no way involve the valuation which Mr. Almert placed on certain property rights in easements here. A total to this point of $19,735,387.63.

1055 Property Rights in Easements—Young.

Mr. Barbour: Now, it appears from this report and from certain evidence in the case, Mr. Young, that this company is at present serving 25,000 customers, approximately, in the City of Washington and has 200 miles of conduits in streets and over certain private properties, approximately 150 miles of overhead lines on the streets and also across private properties. I do not want to have you pass on the legal question, and I am going to pass on that for you; for the purposes of this question, I mean.

Assuming, for the purposes of this question, that those rights constitute property rights which belong to this company, and of which they cannot be deprived without just compensation, I am going to ask you if, as an engineer and with your knowledge and experience in such affairs, you would be able to place a valuation upon those easement rights?

Mr. Young: Yes. * * * I have gone over Mr. Almert's figures and the testimony and I agree with him in the amount that he has calculated, $2,500,000, as the reasonable worth of the easements, because I regard these as actual worths and entirely separate from the franchises, upon which no value has been placed whatsoever. In my opinion you might assume that the canceling of a franchise to conduct a business would not, in itself, take away any property; but the taking away or canceling of easements would necessitate the taking away of all property out of the streets and out of the private places. Hence easements do have an actual worth,

as property, entirely distinct and separate from the franchise, even though they cost nothing. The same with land on which power plants are built.

One reason I have for that is that I know that, when I took the position of general superintendent of the Mt. Morris Electric Lighting Company in New York, we had a franchise, charter, and so forth, for doing all kinds of electric light and power business. We even had a contract for city lighting on Seventh Avenue and Lennox Avenue. We found that did not give us what we required. That gave us the right to operate an electric light and power plant, to do the business and collect the money for it, to serve the City and to serve private parties.

We could not get started. We found we had to get a right for easements in the streets, either to lay conduits or to erect poles, or both, and overhead wires. To do this we had to get the rights from the Board of Electrical Control, who had the exclusive authority in New York City at that time—that was about 1888—and also from the Department of Public Works. It resulted that we did not get those rights for some three or four years.

Downtown we had a case where we had the franchise rights for supplying all parts of the City, and got a contract from the City for city arc lighting on Greenwich street, from Chambers to the Battery. We had the permit from the Board of Electrical Control, but could not get the right from the Department of Public Works to set poles for carrying the wires. We did get a permit for setting lamp posts, on which the lamps would be constructed. We could not get the right for laying conduits, because they had been given to the Consolidated Telegraph & Electric Subway Company, which has the exclusive right outside of the Edison Company in New York City.

We finally got permission from the elevated railroad people to put wires on their structures. It went one, and finally, in a few years, they began to grant us these easements for erecting poles along sidewalks. Even there we had to get the rights from the abutting property owners in every case. * * *

That is the first illustration I have had of the difference between contract rights and easements. It occupies space that cannot be granted to somebody else, because it is occupied—like a building occupied on land. You may lease the land. * * *

My testimony is based on the idea that you wanted to determine the cost of reproduction of the property—the entire property, physical property, as well as everything that goes with it.

1056 Value—Young.

There are 76 varieties of value which go to make up worth. I give the definition of "worth" as "exchangeable value," from Webster, but that does not cover the question; including every item of value entering into and affecting the value of a property, tangible and intangible.

Assuming that these easements are property of which the com-

pany cannot be deprived without compensation, then, they are worth two and one-half millions of dollars.

My testimony in respect to the cost of reproduction of this property would eliminate the word "value." It is the cost of reproduction and that represents actual expenditures.

Chairman Kutz: Do you think that if this property were to be reproduced it would cost $2,500,000 to acquire these easements in the streets?

Mr. Young: If we got it from the Potomac Company, it would probably cost more. This is a free grant, as I understand. I would pay $2,500,000 for them, or could get people who would. I think it would cost more than that to get them. It would cost the developed business of the Potomac Company to get them from it. To get them from Congress, if you can get them at all, it would cost you anything except your incidental expenses of lawyers and so forth. Somebody would have to pay for them. If I had them, I would not give them up. You would not, either. If you could get them from Congress without cost, then there would not be any cost.

Mr. Barbour: I will ask you this, Mr. Young. Assuming that I gave you a lot here in the City of Washington and you built a house on it and somebody came along and would want to buy the house from you. Would you count the cost of the lot in that?

Mr. Young: I most assuredly would.

Chairman Kutz: Now, let us ask the question another way. Suppose somebody permitted you to build a house on a lot that they owned, but reserved the right to take back that lot at any time. Would you, in building that house, include the value of the lot?

Mr. Young: I would not build on it. I don't think the Colonel would, either.

You could not get anybody to advance money on any such assumption. In fact, that is part of the conceiver's compensation—the original money that goes to build up the whole company. It is a necessary thing.

Witness represented the City of New York in a suit that is on now, at Kingston, where they took some water power from some people who owned this property there, near Soaper's Creek. They are suing the City for a million and a half dollars, claiming that they have a thousand horsepower.

I have been employed by the Attorney-General in one case where the New York Central is suing the State of New York for $2,000,000 in Buffalo, and a case of the Boston & Maine.

Chairman Kutz: I understand that you have not represented any community in a rate case?

Mr. Young: No, nor a company.

1057 Great Falls Power Site—Young.

Witness made a study of the Great Falls Power Site some years ago, in a general way; not a complete and final working out. Is familiar with the situation. Understands it exists today very sim-

ilar to what it did then. Does not remember the details of it but understands from information on reading the testimony, that there are 800 acres on the Virginia side, 200 on the Maryland side, and it cost, on the books of the Potomac Electric Power Company, $1,000,000, and dividing the cost of a million dollars by 80,000 horsepower shows but $12.50 per horsepower. It is a very small valuation, even for two-thirds of its ownership.

Witness does not know whether the rights of which the Potomac Electric Power Company owns or controls two-thirds are sufficient of themselves to permit the development of 80,000 horsepower.

His understanding is that they have the right to develop the whole of the power and to get the benefits of two-thirds of what they develop; and if they did not buy out the other third, supposed they would have to give that ownership one-third of the profits.

Eighteen and three-quarters per horsepower is very low for that power, close to a city like this. If it only developed one-half of that power, it would still be worth a million dollars, but not for immediate development. At the time he went over it, his recommendation was not for immediate development. The syndicate wanted to develop it, and there were some difficulties—constructive difficulties—that would require quite an expenditure. It would be a fairly expensive development; but it is a development that is certainly a great asset to any power company requiring development in the future. Believes there will be a demand for that power, and that it will be developed at some time; that it will be developed for the benefit of the City and those who develop it.

This examination was made previous to 1899.

There is a Government dam there now; and to develop it without flooding that dam they would have to put in two sets of turbines, on account of the back water. To properly develop it would require the opening up of the river below, to avoid that back water, and the construction of a new dam. We did not go into that any further, because we decided right away that it would not justify any development at that time. We did not go into the examination sufficiently to make a definite plan.

But, even at that time, he thought the rights now owned by this company were worth at the rate of $10.00 a horsepower. They would be worth that to a company later on, although not worth that to me. I do not imagine the water has increased. It was not valuable enough then to warrant its development.

Values have increased, undoubtedly. I imagine that when the time comes to put all these properties together, they will be warranted then in developing it for Washington. I mean the gas company, Capital Traction Company, Washington Railway & Electric Company, and all the utilities here.

The estimate is not based on the present value and is not dependent in any way upon the assumption that that consolidation will take place.

The future development that the witness has in mind as giving value to the property would be for use in the District of Columbia; this is the market. There is no other market for it.

1058 Promoter's Profit—Young.

Mr. Barbour: Do you know what the conceivers of such a project as this would receive at the present day, Mr. Young?

Mr. Young: I can give you an illustration of what is happening. I know of a hydro-electric proposition, located in Portugal, where the men had been sent there and the people interested said they would finance it as soon as certain changes were obtained in the concession, by which the men would get $300,000 in cash, which is more than 5 per cent of the cost of development, and $600,000 in stock.

Another case—This man has been working on this hydro-electric proposition for ten years. He has bought property for an 8-mile section. He has several thousand dollars in cash invested in it, and a lot of time. He is now expecting to finance it, and it is being looked into by some very responsible people; and the compensation required is $100,000 cash and 20 per cent of the stock. I do not believe he is going to be able to get quite that amount. I think it will be compromised and that he will get perhaps a little more cash and 15 per cent of the stock. That enterprice is in New York State. That is on the upper Hudson River, just below the Adirondack Forest Reserve, which is being developed now. The laws are in effect and being studied for the development and conservation of the water by reservoirs, which will, of course, largely add to the value of it and which will be also taxed upon the users of it below. They will have to pay a tax. There is about 12,000 horsepower in that development.

1059 Witness has made investigations and prepared reports in regard to the purchase of public utilities by syndicates or bankers or other investors; is familiar with the subject, and has had experience in it, which has enabled him to determine, with a fair degree of certainty, the value of public utilities for the purpose of purchase; that bankers and prospective purchasers had acted on his advice and recommendations in such matters, and results have justified his advice.

The principal elements to be considered in such a matter is a knowledge of the city and locality, as to the present facilities, the extent to which the facilities are now utilized, the extent to which development has been made (in other words, the possibilities for future growth of the utility in the locality), an inspection of the plant and investigation as to the franchise requirements and their rights for overhead and underground systems and the rates that are being paid and the character of the governing body.

Consideration to the possibilities for future development is one of the essential features, and then, in connection with that, the earnings of the property, of course, is the basis. All other things being satisfactory, the earnings would be the basic point.

Witness gives consideration to the existence or non-existence of competing utilities of the same or similar character.

That in 1899 he lived in Washington for a whole year, and engaged in building about fifty miles of electric railways.

Is familiar with the electric lighting development of the Potomac Company about that time. They were then laying conduits. Is familiar with the power plants of both companies, the Potomac and the United States Company.

Is acquainted with the general characteristics of the City of Washington and the surrounding territory. He had to go over the city every day for the general supervision of the work which called him to all parts of the city.

Was familiar with the locations and so forth of the plant of the Potomac Electric Power Company and of the United States Electric Lighting Company, and had been through those plants; and that of the United States plant two or three times.

Previous to 1899, he had been over in Washington. He had been in business building electric railways and utilities in Baltimore from 1892 to 1898, during which period he was frequently in Washington. Whereupon the following question was propounded him:

Mr. Barbour: Now, testimony has been offered in this case, in effect, that the Potomac Electric Power Company in the year 1902 purchased the property rights and franchises of the United States Electric Lighting Company, the date of the purchase being September 30, 1902, for the sum of $4,551,967.37, of which sum $213,391.20 were current assets. (I am stating these figures, subject to correction, within reasonable limits; they may not be the exact cents) leaving the cost of the property, other than current assets, at $4,338,576.17.

It has also been testified in this case that at that time the United States Electric Lighting Company—not at that time, but on December 31, 1901, preceding the purchase—the United States Electric Company has 2,714 meters, and on December 31, 1902, 3,234 meters.

It has also been testified that on December 31, 1901, the United States Company had a connected load of the equivalent of 166,997 16 candlepower lamps, which had been increased to 209,402 by December 31, 1902; that on December 31, 1901, it had 2,631 customers; that on the same date it had 249,461 feet of conduits, 1,157 commercial arc lamps, 744 street arc lamps, and 201 street incandescent lamps.

At the same time they had gross earnings of about $535,000 per annum, and net earnings of about $275,000 per annum.

The population of Washington in 1900 was 278,718.

At the same time there was the gas company in operation in
1060 the City of Washington, with approximately 34,000 customers. The plant of the United States Electric Lighting Company was centrally located, near the heart of the city, with a power station located at 14th and B streets, northwest. * * *

That they had received from Congress and the Commissioners of the District certain franchises and privileges permitting the occupation of public space for their conduits, poles and other property,

and were in the actual occupation of the streets and public spaces for that purpose.

Now, having this information in mind, and assuming the correctness of the statements of facts which I have stated to you, please state whether or not, in your judgment, the amount paid by the Potomac Electric Power Company, as heretofore stated, for the property rights and franchises of the United States Electric Lighting Company, exclusive of current assets, said amount being $4,338,576.17, was a fair and reasonable price.

Mr. Young: I think it was a fair and reasonable price for purchase.

Chairman Kutz: What part of that price do you allocate to conceiver's profit?

Mr. Young: I have not separate- it at all; nor franchise value; nor any of them. I could offhand, give you my opinions; but I have not attempted to separate it.

He bases his opinion that the price is reasonable on his knowledge of the city, knowledge of the conditions, the earnings and the future opportunity for expansion, and development; present and prospective future earnings, very largely.

He has not separated the weight given the earning capacity of the plant from other elements, but it is a considerable factor. Perhaps the greater factor is the opportunity to expand and to do business;—not an intangible value; the value of the plant, conduits and everything they have; the physical value, also, but he has not subdivided it.

He has no idea as to what the physical property was worth at that time in dollars and cents; was worth probably more than two-thirds. That is a guess. He has not calculated or separated it; this is an offhand opinion.

He has not segregated all of these items. He has not segregated any of them. He has taken the whole situation as a very advisable purchase for anyone. It is all taken into consideration, and he has not attempted to separate it.

He based his statement that the physical property owned by the company at that time was worth 75 per cent of the purchase price because he has been through the plant, and knows something as to the pole lines and some of the underground construction. They must have had a good deal of physical property to make the gross earnings of $535,000. The rate was only 10 cents, you see. The rate had been reduced, a few years before, from 15 cents to 10 cents, which was another factor in the purchase.

No one would go in and invest their money and have to operate a plant, with the risk and so forth, on that basis, if they did not have prospective earnings. They would think it was a dead town, and would not want to put their money in it.

Mr. Barbour: In your judgment, Mr. Young, and assuming that there were two electric lighting companies here, under the circumstances stated, would it, in your opinion, be consistent or inconsistent with sound public policy and to the interest of the public, as

well as the owners of these properties, that the purchase should be made at this price?

1061 Mr. Young: I believe it was advisable for the city and the consumers, as well as the operating company, for the reason that you get competition. You would have to duplicate the underground construction and distributing system, which is expensive. You would have to have separate power plants, sub-stations, and you would have a duplication of the investment all the way through, which must be borne ultimately by the consumer. The operating expense would be more. The management would be more, and the service would probably not be so reliable.

The earlier that such a consolidation was brought about on fair terms, the better it would be fore the public and all concerned.

The considerations that would lead him to approve of a purchase of such a property at such a price as named in 1902, on the terms stated are:

The property was centrally located; they had a good plant, and the construction was in good condition. The part of the territory served underground, they had the right to extend all over the city. The city was undeveloped, so far as consumption of lighting per capita was concerned; and I would like to refer to the Special Report on Central Electric Light and Power Stations, by the Department of Commerce and Labor, Bureau of the Census, 1902, page 51, in which gross receipts or income from the sale of current in Washington is reported at $1.87 per capita per annum. In the City of Rochester, which had a smaller population, the gross receipts were $5.11 per annum. Pittsburgh had gross receipts of $3.02 per annum. Boston had gross receipts of $3.80 per annum. San Francisco had gross receipts of $4.51 per annum.

This is also confirmed by dividing the gross receipts by the population of Washington, as given in your question showing gross receipts of only $1.92 per annum per capita.

I am advised (in fact, I have looked over parts of the books of the Potomac Company to confirm that) that the present gross receipts in 1915 are $5.03 per capita per annum, which is a confirmation of the opinion that the territory was undeveloped, and it was an important factor to be considered in the purchase. * * *

The gas company had about 34,000 customers, which indicated that there was a large business being served by gas which could, in a city of the class of Washington, be taken over by electric service, showing a good field for electric lighting.

The opposition company was very small. At that time they had small gross receipts; and to develop their gross receipts required the expenditure of a great deal of money; and for underground distribution the enormous cost of doing it underground is also a deterrent against competition—a duplication, I would say, of services.

The governmental body is more favorably disposed as to regulation than the local bodies of municipalities. That was a factor considered by bankers and also by operators.

The plant was a substantial plant, so that extensions could be made, and betterments for extensions, and there had been a recent

reduction of the rate (that is, a reduction of a few years past, from 15 cents to 10 cents), which showed that the then net earnings on the 10-cent rate were down to a stable basis of regulation, and it was considered a very reasonable rate. So that the extension of the business on that basis would be more rapid, and the purchase on earnings secured under a 10-cent rate could be taken at a lower rate of return.

Altogether, I think that it was a very good opportunity for expansion and was a very advisable purchase at that price.

The advantage would inure to the public in preventing rivalry, contentions over the occupancy of certain streets, etc., and in eliminating litigation and contention.

1062 The fact that the rates in 1902 were regulated by Congress, and that under such rates the company has continued to operate *operate* and that it has now approximately 30,000 customers, that it has built up its business fourfold and is able to pay dividends, proves conclusively that the amount paid by the Potomac Electric Power Company for the property rights and franchises of the United States Electric Lighting Company in 1902 was fair and reasonable.

1063 Cross-examination—Mr. Young.

(Mr. Syme:)

Mr. Syme: The purpose of the Commission in making these valuations is to determine, from a certain basis, whether or not the rates charged by those and other utilities here are reasonable rates and to fix them upon a reasonable basis, whether they are too high or too low, with reference to the final fair value to be placed upon the property; and that final fair value and the amount of return that should be reasonably allowed upon it, in justice to the consuming public and to the company, would also have its relation to the amount and the character of the compelled service on the part of the utility, and for that purpose it is necessary to take into consideration, as one of the elements, the original cost of this property, giving that whatever weight it may deserve in the consideration of the Commission, and also to determine, from some fair standpoint, what would it cost to reproduce this property, and when that had been determined, that would be given its weight in the consideration by the Commission in arriving at the fair value of the property, on which rates were to be based and services were to be compelled.

The consequence is that it is fairly necessary for us to see if we can arrive at some sort of a definition in regard to these words "fair value."

At this point exception was taken by the company as to the purpose of this inquiry, which was overruled.

Mr. Syme: Now, we will say that, assuming the object of this inquiry to be as I have stated, I want to see if we can arrive at the term "fair value"—if you and I can agree on what it ought to be—and I will ask you if you think this is an accurate definition of it: The fair value is a determination of what, under all the facts and

circumstances of the case, is a just and equitable amount upon which the return allowed to the corporation is to be computed.

Do you acquiesce in that definition of "fair value"?

Mr. Young: I do not think it defines, specifically, anything. I think it is one of the seventy-six varieties of value. I would say it is not the only value. Inasmuch as my definition of that is much broader than your definition of "fair value," I do not think that I can, in a short time, either agree or disagree, without very, very careful study of that one feature of real value.

Mr. Barbour: Does the addition of the word "fair" to the word "value," as you understand, change it?

Mr. Young: It is one of the different kinds of value. It is the fair value, as I understand the word "value" or "worth."

He did not arrive at any worth. He was only called in to give testimony on so-called overheads. His testimony as to the payment of four millions of dollars by the Potomac Electric Power Company to the United States Company for its assets, so far as it involves worth, was given when he first came to Washington and he would, therefore, modify his first statement to that extent.

If you have two properties owned by the same interests, controlled by the same people, with the same boards of directors, and one buys property from the other for the purpose of an issue of securities, if that is the sole purpose—the issue of securities—I should say most assuredly it should be scrutinized.

There — be some method of repaying the people who go in with their capital beyond a nominal return.

1064 Undoubtedly there has been some abuses in utilities and other corporations. In other cases they have not issued the capital to which they have been entitled; I mean, the number of shares.

He has heard of cases where these abuses which have occurred, have been occasioned by this method of capitalization.

You will have to go into the question of worth to ascertain whether the cost is reasonable or not; but to determine its costs, you do not have to go into its worth.

To determine the question as to whether the cost was reasonable: that is only confirmation. The question was asked whether it was worth what it cost. To determine the cost you would go into the books. And the same situation obtained in regard to the question of the reasonableness of the cost, as added to this reproduction estimate, of $650,000 for conceiver's commission; you had to determine there whether they were worth that before you could determine whether the cost was a reasonable one, and he went on a theory as to what it would cost to do that again. What his services were worth and what his risks were. There are lots of things you have to do. You have to pay the expenses of a purchasing department when you are going to purchase materials. That purchasing department is not an income producer to the company. You have to take all things together.

Mr. Syme: If it cost that much to duplicate it, without being worth that much of cost, would you consider that a proper cost?

Mr. Young: Most assuredly, yes. You could not reproduce it for less.

Without stopping to think, he would say that in 1916 there was no city of 300,000 people without its electric light plant and equipment; and probably no town, in the United States, of 10,000 people; that the urban population of the United States is thoroughly acquainted with the utility of and the necessity for and the convenience of a well equipped certain plant for the production and distribution of electric energy for light and power. There is still a wide field for expansion, however.

It he passed the kindergarten. It is in the primary, I would say. The great thing yet to be accomplished is the further utilization, putting into use on a broader scale, and for more purposes than we now conceive of. Power plants and generating plants and so forth; nothing can be expected much in that direction.

By development period he means the pioneer period; was the first of the underground distribution of electric lighting. There had been experimental underground systems.

The experimental work in the Mt. Morris work in New York was not successful from a financial or earning standpoint.

The generating stations have been all entirely replaced. They were all small units. The only thing that remains are some of the rubber-covered, rubber-insulated, lead-covered cables that were installed.

It is correct that he did install systems of underground electric work which are still in use in as progressive a place as New York. .Cannot tell you to what extent they are in use. I am told that same of these old cables are still in use. * * * The conduits were built by the Consolidated Telegraph and Electrical Subway Company, and today they are building a very different type of underground conduit; but the old conduits are still in existence and being used.

We put rubber insulated lead cables in conduits from 1887 to 1892; some of which are still in use.

The generating plants since that time have all been replaced by other stations. One of these three stations I built is used as a substation by the Edison Company now. Power is not generated there now. Only the building remains.

I called the period from 1887 to 1892 the pioneer period. After it passes the pioneer period and becomes a stable thing, it will always be subject to improvement. There is never a time when that development ceases.

1065 When I said yesterday that the time of development ceased—referred to development which would be charged in reproducion cost. It would always continue in the operation, and will always be a heavy expense. There will always be constant improvements in the art of the production of electric energy and methods of *here* distribution and there will be increasing discoveries from time to time, and that is true in steam engineering and in every other department of life. In this reproduction, I would only

charge up to this reproduction cost the cost of developing the present output of the property, and I would stop there. Now, that development period will continue right along. It will still be an expense to take on additional customers, and all that. That has to be provided for some way; but I did not go into that yesterday. I did not mean to infer that the development period stopped; but I did not think it was justified to put into this estimate.

What the witness was speaking about was the development of the volume of business that was acquired up to July, 1916, in one case, and you are talking about the development of the art of electricity. "Two distinct things." There are two kinds of development, one of which I have dealt with, and the other I have not. That is the development of the business itself. That is what I testified to yesterday. The other was the development of the art which would be taken care of by obsolescence.

The witness is speaking of the development of the business when he uses the term of twelve or fifteen years.

Obsolescence is not included in this at all. They have been disregarded, because this was done by an inventory as of present existing property. So, I have not even considered that in this case, and has not come into consideration of the reproduction cost, except when speaking of certain conduits which were built into some plant up in New York. That was the obsolescence. The development cost strung over a period of 15 years would be more than the development cost of getting that business for a period of five years.

Abandoning the reproduction theory and considering the property starting in new and running for 15 years and trying to find out what the development cost would be, it would be calculated upon the deficits as between the rate of return to which you would be entitled in the beginning and subsequent periods, the difference between that and the actual return which you would get, and also the cost of getting the business. If the rate of return you are entitled to on the investment is large, your development cost would be larger. That deficit would be larger.

If you- earnings were bringing you back a fair return, there would still be the cost of getting the business and putting the business on the lines. Soliciting and advertising are a part of it. It is quite a considerable item.

1066 Legal Organization and Franchise Expense—Young.

It includes a high class legal organization with a complete staff to attend to all of the organization of the company and for legal work in the obtaining of the franchises and easements.

I have not subdivided that. It is not a question of his time there. If a lawyer only got paid for his time he would not get anything like what he is worth.

Mr. Syme: If all the lawyers in this world got paid no more for their time than I am getting right now they would starve to death in a moment.

Mr. Young: I have noticed always that the legal and organization has been at least double the engineering end of it in organization. I was just looking back and I noticed that the engineering estimates we have here are $135,000. You, Mr. Syme, being a lawyer can probably state that in more detail than I can what else to do besides drawing this bill to be presented to Congress to get the whole or a part of this $262,000. I only know what it costs. I am judging as to the cost of legal organization and not separating any item. The lawyers' bills I have had do not separate anything, but just say, "services to date so much". You will have lots of legal disputes and fighting to do. You have got to educate the public, and you have got to educate the consumers. One man cannot do it. You have got to get everybody to work for them and not pay them any more for that work than you have to. I do not think the lawyers get all this. I do not sympathize with that view. I think there may be a little expense of entertainment such as a few dinners, etc., but a few thousand dollars would cover all that. I know in New York more business is done at luncheons than in offices. People are free then, and you can sit down and talk things over, and the cost of the luncheon, I suppose, would be $4 or $5. It is not a very large item in my estimate.

* * * * * * * * *

What I think you have got to do is to create a public demand. that is where your effort is going to be spent, not in influencing Congressmen, not to get Congressmen or Senators to work for you, but to get the public or the people to the point where they realize the necessity of this service. You have got to educate them up, and it is going to take the time and expense of people who are devoting their time to that work, getting the public to create a demand, and getting Congress to know that the people want an electric light service. I do not believe they would grant it if the people did not want it. That is only a part of the $50,000 item.

I have not separated any of that. I have it altogether as legal organization. I do not know just how much of that time the attorneys—perhaps you might get an attorney and pay him $30,000 per year whose word perhaps would influence the public enough.

* * * * * * *

You have got to overcome all sorts of individual ideas. It might cost more to get it today than it would originally, and, in my opinion, it would. A part of this money might be spent not to prevent the establishment of a municipal plant but to educate the people and show them that a municipal plant would cost more to operate, which is the fact, and is is not good policy for our Government to operate its own plants. They might own all they want to, but to operate things of that kind is a different proposition. You have got to educate the people and show them the facts in the case. I think it would cost more to do this work than it would in the beginning.

Chairman Kutz: You think the rate-payers ought to pay the cost of convincing themselves that they are wrong?

Mr. Young: I do not know of any way by which people get something for nothing, and all of this has got to come out in some way or other of services rendered, otherwise it is confiscation if it is not repaid.

In getting at the cost of reproduction, no provision has been made for property, scrapped, abandoned and worn out. This has been done on a basis of pure present inventory. I do not think it should be eliminated but it is not included here.

1067 Depreciation—Young.

Wear and tear of property in use is known in common parlance as depreciation, which is of three kinds. First, the ordinary repairs which you make from day to day and the maintenance that you make from year to year, and then the replacements which are made at longer periods, when the different portions are worn out entirely; but when maintenance is kept up to a point at which normal efficiency of operation is maintained, we call that 100 per cent efficiency, and we would not deduct anything from its value.

Cost of ordinary repairs made from time to time should come out of earnings, and the rates should pay high enough to permit it.

In addition to maintenance there is *o*bsolescence, when an entire new type comes in. That is the development of that art. That should be in the capital account. There should be no deduction for depreciation from a reproduction cost where the plant is assumed to be maintained at 100 per cent efficiency.

Suppose it should happen that the plant for some cause or other was only 75 per cent efficient, if the maintenance was kept low on account of the insufficient earnings to permit it being kept up to a higher point, I should say you ought to raise the rate. My idea is that money that has gone into a property still remains there, that is, all investment still remains in the property until it is paid back above fair earnings.

I would only deduct the abnormal excess when a property is allowed to run down in case dividends of more than a normal amount had been paid.

Assuming as it exists today it is only 75 per cent efficient, I would not deduct depreciation unless excess dividends had been paid; in other words, if depreciation had been allowed to go down in order to pay excess dividends it ought to be deducted, and not otherwise. You never can consume the whole value of the plant in service because it would get to a dangerous condition.

So far as depreciation is concerned, his entire theory as to whether it ought or ought not to be deducted is a question, in the first place of earnings, and second, distribution of earnings in the form of dividends as to whether they are excessive or not, in considering the question of whether it should be deducted from the capital account

1068 Legal Organization and Franchise—Young.

The item of $60,000 for negotiating would be spent for examinations and reports made by engineers, which have to be made by other engineers for confirmations, independent investigations and the printing of prospectuses, and then the expense of traveling and other expenses of negotiations with bankers and brokers and syndicates and various groups of people trying to interest them in this business. The promoter and his associates incurred these expenses and have to be reimbursed.

1069 Conceivers' Profit—Young.

I did not say it was going to take 10 years to convince Congress. I can conceive that it will take 10 years' work of a competent man and his associates and it is worth $650,000.

The justification for this payment is the years of work on the part of the conceivers of the project. They may never be able to get it from Congress.

1070 Brokerage—Young.

I do not think you will get any underwriting syndicate to approach the *the* syndicate managers for less money than that $700,000. I do not call that $1,350,000 preliminary. That converts the preliminary and everything into actuality. When you get the money then you can go ahead.

1071 Development Cost—Young.

The development cost is estimated by the witness for deficits in part; also cost of securing and attaching the business, the development of business which is a very large expense. It is not any 8 per cent that I know of. It would be less than that. The cost of attaching the business has nothing to do with that 8 per cent. It would be 8 per cent interest less the earnings that you make during the construction period, which would give you the deficits, to which I would add the cost of attaching the business, that is, the cost of securing and attaching the business. The earnings begin the third year but you do not get much if any return.

The cost of developing the business roughly would be over $600,000. If it should transpire that the cost of reproduction is only one-half of the $17,000,000, that would reduce this cost of development some.

The cost of attaching here in excess of $600,000, would not be reduced any. It would only be the difference between the 8 per cent on the amount of money in it and the earnings.

$600,000 is to be spent for soliciting, advertising, canvassing and assisting in the development. The term of years is probably low. That was only assuming under normal conditions of probably getting

it over a 10 or 15 year period. It would be higher probably to do it under a 5-year period. That is assuming a normal development. You could develop it in a little shorter period now than you could have originally.

Do you think they have been taught today up to 100 per cent? You have to continue your development work today.

I understand companies always charge it in the operating expense, and that is the reason the rate has to be sufficient to cover it.

The cost of attaching the business should become an operating expense from the very time of beginning operation, but you would have the same effect because you would increase your operating expenses, and, therefor-, create a greater deficit, which would be added as part of the development cost. It is in the same account anyway. I have separated it here as they requested, not as a finality at all, but as a convenient item. When you put it into operating expenses you make it a greater deficit and it goes into capital. After that we are not considering it with relation to the capital account if the rate is large enough. If the plant were put in Washington at the present time, and we did not have any business, it would take 10 years to develop it. My experience makes me think that.

At this point witness produced and testified as to the accuracy of a compilation of the additions to be made to Mr. Almert's base figures, as follows:

C. G. Young's Estimate of Additions to be Made to Mr. Almert's Estimates.

Engineering, supervision, and inspection:		
$30,000 per year for 5 years	$150,000	
Amount allowed by Mr. Almert	135,000	
Amount to add		$15,000.00
Working capital:		
Amount estimated by C. G. Young	$500,000	
Amount allowed by Mr. Almert	378,396.71	
Amount to add		$121,603.29
Development cost:		
Amount estimated by C. G. Young, being 12½% on $17,620,064	$2,202,508	
Amount estimated by Mr. Almert	2,115,323	
Amount to add		$87,185.00

Total amount to add to Mr. Almert's estimates	$223,788.29
1072 Mr. Almert's Total Base and Overheads Excepting Great Falls Power, and Excepting Property Rights in Easements	$19,735,387.63
Total including C. G. Young's additions	$19,959,175.92
Great Falls Power	1,000,000.00
Property Rights in Easements	2,500,000.00
	$23,459,175.92

which statement shows wherein he has differed from Mr. Almert's figures in certain respects.

In the view of this witness' completed physical plant of such a company as the Potomac Electric Power Company before it has attached any business, is a different proposition entirely from the same plant with a volume of business attached sufficient to pay operating expenses and a fair return on its capital. It is the cost of creating that difference that it is put in here as the development cost. The expenses would be paid to create that condition; what any one could afford to pay to take that load over onto a new plant that they were going to build. Mr. Almert's calculations are based on the theory that that could be done within this construction period, but witness does not think from a practical standpoint that is a long enough time to do it. But for the purpose of this estimate and these corrected figures he has adhered to Mr. Almert's theory about it and has not increased it.

Witness was employed by the Potomac Electric Power Company to testify here as an expert witness and will be paid by them for his testimony; or rather he was employed by Mr. Almert, and he supposed that is employment by the Potomac Electric Power Company.

1073 FRANCIS B. H. PAINE.

Mr. Francis B. H. Paine, another witness called on behalf of the Potomac Electric Power Company, and being duly sworn, testified that he resided in New York City; was a consulting engineer and counsellor in matters relating to public utilities; is 47 years of age.

Is a member of the National Electric Light Association, American Electric Railway Association and a fellow of the American Institute of Electrical Engineers, and represents the latter on the joint national committee on overhead and underground line construction, and one or two other committees.

For a great many years he has been active in engineering committees of these associations, having to do with construction and operative matters, joint use of facilities of one kind or another.

In 1891, was a delegate of the American Institute of Electrical Engineers to the Engineering Convention held with the exposition at Frankfort-on-the-Main, in Germany.

Between 1907 and 1913, was frequently appointed by the Public

Service Commission of the Second District of New York to serve on joint committees consisting of representatives of the utilities and representatives of the Commission to advise and report on various managerial and operating matters, orders controlling which the Commission had in contemplation.

In 1886-1889, began his work; for a short time spent in a railway surveying party; then entered the laboratory of the Westinghouse Electric & Manufacturing Company at Pittsburgh, Pa. These four years were spent directly under Oliver Shallenberger, chief electrician, and in association with such men as Stanley, Tesla, Schmid, Professor Charles F. Scott, and others. This was his engineering school. He is not a graduate of any technical university and has no degree.

In 1889-1890. He was a salesman of the Westinghouse Company and was sent to Texas, Arkansas and New Mexico. In those days, electric light, railway and utilities other than those supplying gas and water were to be found only in large communities. His business was to go into unsupplied communities, to make a study of the community needs for electric light or railways, and to make estimates of the cost of installation and to develop an interest in such project on the part of prominent residents and business men in the community to be supplied. Having interested such residents and others he assisted and advised them in securing a franchise; what it should contain, etc.

His next effort was to assist in forming the corporation to take over the franchise and in securing subscriptions to the capital stock advise as to contracts for and how to construct the plant.

As an engineer he was at times called upon to install and put in operation similar plants which had previously been arranged for by others.

In those days he gained his experience in the preliminaries of utility work.

In 1890, he was directed to familiarize himself with steam engines, boilers, water wheels, dams, etc., their construction, installation and operation, and then to go to the Rocky Mountains in Colorado to make a study of the opportunities afforded by mining for the use of electrical machinery and spent the entire open season of 1890 in those mines, and arranged for the first long distance transmission of power by alternating current. The power was transmitted from a water power near Telluride, Colorado, to the mines, three miles up in the mountains, which would have had to shut down without this power, due to lack of fuel. This installation represents a small beginning of what is now an immense industry.

In 1891 he left the Westinghouse Company to become a member of the firm of Charles Paine & Sons, consulting engineers. During his brief connection with this firm he was retained by the street railways of Detroit, the city of Hackensack, New Jersey, and
1074 other lesser matters, and in that year occurred the Frankfort Exposition, which took him abroad for the purpose of securing European utility methods and practices.

1891-1893: Employed by the Edison General Electric Company, the forerunner of the present General Electric Company, to go to Oregon and Washington with duties similar to those in Texas in 1889-90. The Northwest was then in the depths of depression.

1893-1898: In 1893, he returned to the employ of the Westinghouse Electric & Manufacturing Company and attached to their New England office. His duties were as previously described for Texas, except that his time was devoted more to advising utilities in their management matters rather than to the instigation of enterprises.

During this period his work extended to hydro-electric installations in Colorado and Utah, copper refining in Montana, electrochemical work in Niagara.

In 1897 or 1898, he became manager of the New England office of the Westinghouse Company, and in 1898 took charge of the New York office of the same company, including the export business of the company, and in 1899 he was commissioned by the Westinghouse Company to make a thorough investigation of foreign business. Sent *an* associate to West Indies, Central America and South America, and he spent two years in the Orient, in Japan, Eastern Siberia, China, the Philippines, Siam, and some time in India, making a thorough study of the commercial conditions of the countries visited, becoming acquainted with their methods, practices and requirements.

Spent six months in London familiarizing himself with the methods of that great money market, and the headquarters at that time for the world's development. He wanted to know how those Oriental countries raised the money with which to bring about their development.

In 1901 he returned to the United States to establish the export department of the Westinghouse Company, continuing in charge until 1905. At the same time renewing his work with certain large clients with whom he had had relations prior to going abroad, as well as others in New York, such as the Interborough Rapid Transit, the Surface Lines of New York City, some of the copper companies, the New York Central, etc.

In 1903, the owners of the old Telluride property became consulting engineers of the Ontario Power Company, an hydro-electric power company on the Canadian side of the Niagara River, and at their request he spent much time advising them as to design of that company hydraulically and electrically.

In 1905, he became general manager of the construction company building the Ontario Power Company, and completed the first development of that great power company, having charge of all construction, but not the design. This involved the construction of coffer-dams in the swiftest part of the Niagara River, concrete dams and head works, the largest conduit built in this country up to that time, open excavations and tunnelling in rock, large and small buildings and their equipment, etc.

The Ontario Power Company sold a large block of power to the Niagara, Lockport & Ontario Company of the State of New York,

which company proposed to distribute the power, and began the development of that transmission system in the western part of the State of New York. The owners of the Ontario Power Company then acquired a dominant interest in the transmission company, and he became the vice president and chief engineer of the construction company, building the transmission company, but not at that time in charge of design.

The construction of the transmission lines, substations, etc., being practically completed in May, 1907, the construction company became the holding company, and he became general manager of the operating company, in charge of all engineering, design, construction, operation and commercial development of the Niagara, Lockport & Ontario Power Company, and so continued, performing all those duties ascribable to a general manager.

1075 In 1911, he again went to Europe to familiarize himself with utilities on the Continent, particularly as to their finance, methods of construction and their service in very rural communities.

In the summer of 1913, he went to New York, opening an office there, to act as consulting engineer and counsellor in matters relating to the management of public utilities, valuations and appraisals for all sorts of purposes, including rate-making, purchases, studies of management and organization of some large properties, studies of the condition of properties with advice as to their economical rehabilitation, acting as counsellor in various problems of intercorporate relation, contracts, etc.

He was counsellor in the case of the Bell Telephone Company of Pa., and the Chesapeake & Potomac Telephone Company of Maryland, and was chairman of the committee on appraisal of the New York Telephone Company. This committee consisted of six independent engineers with one telephone official, formed for the purpose of making a thorough and impartial appraisal of the property of the New York Telephone Company.

On September 1, 1916, the firm of Paine, McClellan & Campton was organized and among other allied work continued that work which he had been doing in the past and which he has described.

Does not use the word "counsellor" as meaning counsellor in legal matters, but simply and solely in business matters.

Has had actual and practical experience not only in the physical end of construction work, the strictly end of it, but also the organization and financing of such enterprises; and has testified from time to time and been accepted as an expert in matters of engineering and finance. In a general way has familiarized himself with the report and estimate of cost of reproduction made by Mr. Almert in this proceeding, and gave particular attention to these estimates of cost. He has made a brief summary showing his analysis of that report which he produced, was identified and introduced into the transcript as follows:

Potomac Electric Power Co.

Overheads or Indirect Costs, as Estimated by F. B. H. Paine on the Labor and Material Base Estimated by Harold Almert.

	Labor and material cost, all overheads and indirect apportionments omitted.	Per cent of labor and material.	Indirect costs.	Field costs.
A	$830,968	34	$282,529	$1,113,497
B	5,920,867	37	2,190,717	8,111,584
CD ...	4,226,648	38	1,606,126	5,832,774
EG ...	251,966	4	10,079	262,045
F	378,396	..	.....	378,396
	$11,608,845		4,089,451	15,698,296

Interest	1,417,134	9%
Misc. Indirect Costs	2,672,317	17%
Labor & Material	11,608,845	74%
Field Costs	$15,698,296	100%
Contractor's Profits 3%	470,949	
Constructed Property	$16,169,245	
	$16,169,245	

1076 Financial Indirect Costs to be Added to Field Costs.

Preliminary Expenses as a Project	.....	
Misc. Indirect Costs	2,672,317	17%
Labor & Material	11,608,845	74%
Field Costs	$15,698,296	100%
Contractor's Profits 3%	470,949	
Constructed Property	$16,169,245	
	$16,169,245	

Financial Indirect Costs to be Added to Field Costs.		
Preliminary Expenses as a Project ..	....	
Prior to Construction	2%	
Cost of Money	5%	
Promoters' Remuneration	5%	
	12%	1,940,309
Cost of Development of Business "Alvord"..		18,109,554
Method by Mr. Almert		2,220,000
Reproduction Cost of Property and Business,		$20,329,554
NOTE.—Great Falls Power		.....
Easements		.....

Describing this he said that the letters at the very left hand side, above the middle of the page, are simply index letters for his own convenience in handling the figures, and have no significance whatever.

That he received from Mr. Almert the following information, and that he is in the habit of speaking of direct costs as those costs of labor, material and land, without any distributed or indirect or overhead costs, however you may wish to refer to them. Those figures are under "labor and material" in the first column, and they are as follows:

Land	$830,968
Transmission and distribution	5,920,867
Buildings, Miscellaneous Structures	916,076
Power House and Substation Equipment	3,302,462

Buildings are comprehended under "CD." The two are included (under CD). They were given to him separately.

Then "EG," Miscellaneous Property	$122,833
Materials and Supplies	129,133

Which, combined, make the sum of "EG" $251,966.

Operating Capital or working cash capital $378,396.

Entering into "CD" were three items, buildings and miscellaneous structures, plant and substation equipment and $8,110, which was an item included, as I understand it, within Mr. Almert's figures and consisted of parts for substation equipment. There is a little question in my mind whether they ought to be in there or in the next item "Materials and Supplies," but it was not very material. Then further, an item "Cost of Development of Business, Alvord Method by Mr. Almert," $2,220,000. Those are the items which he got from

Mr. Almert, and on which he based his studies of the added costs involved in the construction of such a property, which are always of a general nature, and it is necessary to apportion to the direct cost, as he terms it, of the plant equipment in any convenient way, but generally as percentages or on a dollar basis. There are a great
1077 many ways of estimating. His own practice has been to determine in his cost keeping what it cost in material and labor in the field without any of the general expenses, and that has been the way in — he followed through and can better deal with it than to attempt to analyze or explain the indirect costs or overheads, as they are termed probably by somebody else, without a detailed knowledge of just what he includes in them.

These figures which he has already mentioned are the only things which he took from Mr. Almert's report, and the balance is the result of the exercise of his own independent judgment and in the light of his experience and knowledge pertaining to such a propos-tion as this.

When such expenditures are involved in labor and material, then certain other expenditures are involved according to the nature of the property. In his work of various kinds he has not found that there was any material difference between the cost of constructing a railroad, I mean in percentage of dollars, a water works, an hydro-electric plant, a pumping plant or an electric plant; in other words, it does not make much difference when you are constructing a building and installing machinery in it whether the purpose is to pump water or to pump electricity, and so far as these indirect costs are concerned, it does not make very much difference whether the pole line is to transmit messages or whether it is to carry electric light and power wires.

1078 Subcontractor's Cost—Paine.

In some of the costs determined by Mr. Almert, he has used the expression "sub-contractor's expense and profits," being 15 per cent of the labor involved in certain items in the cost units. In his construction work, he uses that method very frequently and very generally whenever he can, as being the cheapest form of supervision, and when the construction involved is of reasonable magnitude and of reasonable length of time and of varying characteristics he has always paid 15 per cent on the labor and on such incidental material as is supplied by the sub-contractor, supplying that sub-contractor with all the major material, however. His figures would exactly confirm that. Generally the expression which we use for that is "force account," and generally the man engaged in force account contracting does the small part of the work and can work out a profit on the thing, whereas, the company itself if it were hiring, engaging and dealing with the men would not find it profitable; that is, he can pay up to 15 per cent on it to better advantage than to attempt to hire the man to handle it himself. I do not include 15 per cent in this, because I deal with it all as a supervision item. For the determination of certain items it becomes desirable to determine the

relation of labor and material to the sum of labor and material, and in electric light work I have found it was as near as could be expressed one third labor and two thirds material. I have found in water works construction it was more nearly 40 and 60. Mr. Almert tells me that in certain of his studies, not the entire property, however, as I have included, he has determined it to be 35 per cent labor and 65 per cent material.

I take my one third and two thirds as being for the whole thing, whereas, with Mr. Almert, I do not know just what the parts were. It is pretty close, and I presume the proportion of labor has increased because of the unusual amount of conduit work in this city.

In addition to the direct costs, as I use the term, there are certain other expenditures involved in the construction common to the whole and not assignable to specific items of plant as are the direct costs. These expenditures common to the whole are apportioned to the direct costs as a percentage upon them. I term these "indirect costs," often expressed as "overheads."

Experience enables us to estimate indirect costs with the same accuracy that we may determine the direct costs. Their amount in very many instances has been determined during construction work and found to be substantially the same percentage to be added to the direct costs in all kinds of construction, whether it be a railroad, gas plant, water plant or electric plant.

The experience of individual engineers leads to a different classification of the indirect costs according to the methods of organization followed in practice by the constructor. Their total should not differ materially, and in order that I may express my judgment as to the proper percentages to be added in this case, I will use my own classification. I divide them into three general groups for convenience of cross reference, and I entitle them "L," "M" and "N," "L" being the indirect costs on such property which come under engineering, design and supervision. They are the indirect costs of what might be termed the construction department; "M" being indirect costs concerned in the handling of money as "L" is concerned in the handling of labor and material; and "N" the financial or those costs which secure the dollars to be used and the preliminary expenses, those expenditures involved prior to the beginning of construction. In general I have been the constructor and confronted with the general contractor's costs, and, therefore, I am making the analysis of the costs as though I were the general contractor after adding what would be certainly a low remuneration for the service of the contractor. The whole theory of the construction of this part of the expenses, I do not say it is better but it is different than that employed by Mr. Almert.

I will read a table of itemized indirect cost percentages which, in my judgment, is applicable to the various classes of direct costs first stated. They are not intended to be applied in every instance to each item. There is discrimination in their use. For instance, the purchase and utilization of land involves selection of percentages different from the building of a conduit line.

There can be no exact line of demarcation as between the indi-

vidual items and, in fact, even as between the various classifications of indirect costs. The purpose in stating the details is to indicate the nature of the expenditures involved and approximate magnitude. Experience justifies the totals.

1079 Group L, being construction department indirect costs: I divide my administration, as I define it, between the construction department and what I term the treasury department expenses; the administration as between the building of the plant and caring for the money; so that the part of administration entering into the construction department work is, in general, that consisting of the executive officers and other expenses, clerical, cost of accounting and auditing, postage, telephone, telegraph, stationery, rent, legal advice in general to all construction departments, and to that I ascribe 2 per cent.

2. Engineering, in general, consists of the general designs for the property as a comprehensive whole, group designs for the property, detailed designs for items, general specifications by class of property, detailed specifications for contracts or purchases, consulting engineers and architects, inspection of materials at sources, inspection of plant as it progresses and for acceptance, surveys, soundings and special studies, progress studies, and certificates on which estimates are made and money received as a rule from the trustee. All that takes 6 per cent.

3. Supply expense on materials consists of the following items: Purchasing agent and department expense, traffic supervision (not freight or cartage), warehousing and storage, loss and breakage in stores, to which I ascribe 2 per cent.

4. Supervision, within which word I include superintendence in general, office equipment and expense more or less as occurs under administration for that group of expense, work orders and requisitions, employment of labor, housing, settling disputes, and so forth, timekeeping and material checking in the field; assistant superintendents of property group; general foreman.

Then construction engineering, by which I mean the methods of doing the work and the ways or means of accomplishing, carrying out the engineer's designs, arrangement and use of territory, method of construction of false work, temporary work. To that I ascribe 6 per cent.

5. Omissions, considered in making the inventory; that is to say, the things which could have been seen but which were not seen or counted and, therefore, omitted—2 per cent.

6. Contingencies are those things or conditions necessary to the construction of a property which disappears and leaves no trace and not of record in old properties, and a knowledge of the necessity for is lost. It is somewhat like the 15 per cent ordinarily added finally to an estimate for construction. I put it here at 5 per cent.

8. Then come experimentation or work and material and so forth, necessary to a determination as to alternative methods or devising advances in the art or providing for improvements. I have provided nothing of that sort here, because it is a reproduction new question, and it is assumed that the engineers had a knowledge of it and used

it. I am in doubt whether it should be included. It is something, but I do not know what.

That is the conclusion of the construction department indirect costs. Then come the treasury department indirect costs, consisting of administration, similar to the same item under the construction department, but with a little different grouping of functions. They are the executive officers, the executive expense, auditing, the treasurer and his office expense in carning for funds, trustee's expense in issuing funds on certificates as the construction proceeds. That is the way it has usually been handled in my construction work. Legal advice on corporate and such matters. For all those I ascribe one per cent.

I think I might here say that I grouped the legal department expense together with the administration, because certainly during the construction of a property (in fact, afterward) the legal advice enters so constantly and frequently into administrative matters of all kinds that I have never been able to separate it; and the functions of the legal advisers are very wise, as I have experienced them. I could not possibly say what the legal functions are and where the duties of the legal officer begin and the duties of the chief engineer or general manager cease. It is an indeterminate point, according to the personality of the men involved.

Then comes the item of taxes and fire insurance, for which I have put down one per cent.

Liability insurance for the employes, for the public and sub-contractor, for which again I have put down one per cent.

In doing so, I want to explain that I have made no study either of the tax laws or of the liability laws affecting the work in the District of Columbia. It would have taken a good while for me to do it. I did not have the opportunity, and I do not know, other — that is the lowest I have ever found anywhere; and I presume that I am very low on taxes and fire insurance, and that I am quite low on liability insurance—lower than what the actual cost would be.

1080 Now we come to the application of the percentages to the different classes of construction work, and repeating the statement that the base figures are those which have been provided me by Mr. Almert and which I have previously given; the first item being A, all land; the direct cost being $830,968. In making an analysis of interest charges, the interest expense is largely dependent on the period of work and the work program, as are other costs which I will discuss under development costs—business development costs.

1081 Construction Program—Paine.

In looking over Mr. Almert's studies of the cost of developing the business and his construction program, I am forced to make two criticisms; the first being that his program contemplates the purchase of land during the construction period, whereas in my judgment to do so would be an error. think he is too tardy in his purchase of land. * * * It becomes essential that from the very beginning there be a knowledge — the exact place where it starts

and where it ends. * * * and if you put off buying essential stations sites to a time after construction begins, you run great risk of not being able to get the points you want; and I think it essential that the land be bought in that preliminary period of a year.

Furthermore, in his construction program, I think he has tended to let it spread over too long a period. I think the major construction of the property should have occurred during the second, third and fourth years, leaving for the fifth year only the connections and subsidiary conduit system, and so forth. The only effect of this is its slight effect on the interest rate. I am assuming, contrary to my view as to the propriety of it, 6 per cent interest.

* * * * * * *

I think the money ought to carry its full and proper return from the time the risk is incurred, and if that return is agreed to be 10 per cent, the interest should be 10 per cent—not six. I am following the conventional method, because 6 per cent was acceptable here.

The means, then, if the construction program was slightly altered as I have indicated for the first half of construction—it would mean interest on the whole amount of money for half the time; and that is as simple and close a way of calculating as I have ever found.

I have had occasion within the last few months in our office to consider this in connection with the estimating of interest charges on a number of large properties of approximately this size, as well as some that are larger, and all of about this period of construction. Those estimates according to different theories, range from 11 to something over 13 per cent, largely according to the theory of approach and whether you borrowed your money in one way or another. I like to get away from those theories if I can.

1082 Administration—Paine.

Now, as applying to land, there is the administration charge of 2 per cent. There is some engineering connected with the land; but in lieu of the principal engineering costs, there are other incidental expenses in connection with title and the filing of the deed and such matters, and I presume you have a title guarantee here.

Brokers' fees and all such matters, bringing it to the same amount as I have found for the engineering as a whole, 6 per cent.

Then come the treasury expenses, and they consist of the administration, of the amount which I have included for taxes and fire insurance, one per cent. It is obvious that the taxes for four years on land would be more than one per cent, but I have adhered to that because I do not know how to calculate them here. I do not know what the laws are.

* * * * * * *

One per cent on the whole period. There is 4 per cent of general indirect costs; and four years at 6 per cent is 24 per cent

588

interest. That makes the general miscellaneous indirect costs and interest $282,529; and that percentage is expressed in the second column.

1083 Land—Paine.

The interest item in those indirect costs being $199,432, or a total estimated cost of land, including its acquisition, being $1,113,497, and that is shown in the column which *which* is designated "Field Cost."

He built up his percentages in the manner indicated—10 per cent and 24 per cent, which makes 34 per cent, and applied it to the base of $830,968, the actual cost of the land, to reach the first indirect cost, and adding the two together you have the field cost. The reason for separating interest is in order that I shall find the composite interest on the construction of the property as a whole. This is the only reason. That is a point which is generally desired.

That includes interest during construction and everything on that one item of real estate up to the construction of the property.

1084 Transmission and Distribution—Paine.

Then comes the B item, $5,920,867. That takes all the group of L indirect costs under the construction department, which amount to 25 per cent, and as the construction period runs over four years, one-half of that would be two years times 6, which would be 12 per cent. That brings a total of indirect costs of $2,190,717, of which $710,504 is interest. That makes the total field cost of this item B $8,111,584; made up of administration, 2; engineering, 6; supply expense, 2; omissions from inventory, 2; contingencies, 5; supervision, 6; and under the treasury department (letter "M") comes administration and liability insurance, 2%. I omit taxes and fire insurance.

That makes 14% administration and liability interest. 2 with 12 is 14, and 23 more is 37.

1085 Buildings and Miscellaneous Structures and Plant and Substation Equipment—Paine.

Then, I, for convenience, group C and D, being buildings and miscellaneous structures and plant and substation equipment, finding from Mr. Almert's figures that C and D together amount to $4,226,648.

If this property is taxable it should be added, and likewise, if under the liability laws of the District one per cent is too low, as I apprehend it is, the proper amount should be substituted.

Now, for the group of C and D buildings, miscellaneous structures and substation equipment, it would be sufficient for me on the record to say that they consist of the same overheads as in B group, except that, in addition, there is one per cent for taxes. I

have assumed that such property would be taxable. I am very sure it would be.

That amounts to 38 per cent, or $1,606,126, making a total field cost, as I use the expression, for C and D of $5,832,774.

1086 Miscellaneous Property—Paine.

Then, E and G and F, being the miscellaneous property, materials and supplies, Mr. Almert's figures are $251,966. Those carry indirect costs, consisting of only supply expense under the construction items and taxes; that is, two per cent; taxes and fire insurance, one per cent, and administration of the treasury department one per cent, making a total of 4.

The engineering involved in the general administration is merged in other parts of the property, and such purchases as here contemplated follow as a natural sequence upon the purchase of the major equipment. That 4 per cent, then, amounts to $10,079 (there is no interest), showing a field cost of $282,045.

1087 Working Capital—Paine.

Operating cash capital: Mr. Almert's figure is $378,396. I have ascribed no overhead to it in any way. It might carry the one per cent, but I do not think so. I have not included it in any case. So that the field cost is, then, $378,396.

The sum of those figures for field cost is, then, $15,698,296, the interest charge on which having been $1,417,134, which is 12.2 per cent, added to the labor and material cost.

It is 12.2 per cent on the lower base and 9 per cent on the field cost. They are slide rule figures.

1088 General Contractor's Profits—Paine.

That represents all the costs which would be, in my judgment, involved in the production of the property, except one; that being the expense of organizing the construction forces, which may be so expressed or expressed as a general contractor's profit, including no costs, the other costs having been stated as I have analyzed them.

I, therefore, add 3 per cent for that. I think 5 per cent would be reasonable, but in two instances lately I have been assured that in large properties of this general nature there has been a fee of 3 per cent for the uses of a contractor's organization on top of all his costs, and I have every reason to believe the statements correct. That being so, I must use 3 per cent here.

This is substantially hearsay but the statement was made to me, however, by a man who does a considerable amount of work. I have never, myself, been able to get anything under five.

From his personal experience he would put it at 5 per cent.

From the statements made to him from what he regarded as reliable sources, a man doing the work for 3 per cent, he would put it at 3 per cent—if he knows the man to be competent. I am perfectly

willing to state the source of my information and the circumstances, if desirable; but I should not care to have it appear on the record.

Mr. Barbour: If the Chairman would like to hear it off the record, he can make the statement.

Mr. Paine (continuing): That makes—the 3 per cent is for what I will, for convenience, call "contractor's profit," $470,949, making a total for the constructed property of $16,169,245.

He has not allowed, either in his overhead or indirect cost or otherwise, for this 10 per cent contractor's fee that Mr. Almert included in his statement: not in those words, but the equivalent of it. He has stated the contractor's cost and then added his profit; whereas Mr. Almert grouped the two.

1089 Financial Indirect Cost Preliminary to Construction—Paine.

At this point I add the financial indirect costs and that preliminary to the construction of the property; and for convenience, and in order that my figures shall be all together, I will give those now, and then the discussion of the items, explaining them, later.

Preliminary organization prior to construction, 2 per cent; cost of money, 5 per cent; promoters' remuneration, 5 per cent; a total of 12 per cent, which, applied to and added to the sixteen million and odd thousand dollars, amounts to $1,940,309, or $18,109,554.

Then I add, that being the constructed property, without business,— I add Mr. Almert's estimate, according to the Alvord method, of $2,220,000, making a total reproduction cost of the property and business of $20,329,554.

I would like to say that when I received Mr. Almert's base figures, as I term them—his labor and material figures—I began a study of the situation and the application of what I regard as the reasonable other costs of construction, and had not the slightest idea of where I was coming out. Since then I have found that this is measurably close to Mr. Almert's figures, but they were made without any detailed study of his figures in any way, and they represent my individual judgment absolutely.

The first item which I have used there is the expense preliminary to the construction, the expense of developing the project and, in general, the items involved are, first, conception of the project, the determination of its scope and territorial breath, preliminary outline design in sufficient detail that reasonable estimates of cost may be made, including the estimating of length of time which it would take to construct the property and what the subsequent business development cost—I have forgotten the term used in this case—what that would amount to, and what the total out-of-pocket expenditure would be for those furnishing the money.

There is no better way of determining what that probable development cost—business development cost—would amount to than to use the Alvord method.

Then come the estimates of operating expenditures, operating revenue and resulting profits, prospectus of description of the project,

development of the financial plan, legal and other advice, negotiations with state and community governmental bodies. I presume in this case it would be the United States. Am I correct in that? Charters and things of that sort are derived from Congress here.

* * * but not including any payments to the public for the public rights nor including any valuation of those public rights.

These costs are absolutely essential. Certainly, in those places where finance is subject to the approval of the public service commission, all of it has to be done before they can intelligently pass on the project, and 2 per cent is a fair and reasonable estimate of those expenditures. Ordinarily, in my opinion, that runs from 2 to 4 per cent. I have taken the lowest amount here. I have never found any place, except in perhaps very small properties, where the amount be less than 2 per cent. I have found places where it might be more than 4 per cent; but those are cases where the state laws require many formalities, as, for instance, in Pennsylvania, where you have to have a charter for -very county in which you operate, and perhaps every borough or township.

All those have to be separately financed, separately submitted to the public service commission for approval, and it all involves enormous expense necessary under the law; whereas in New Jersey and in most states, you deal with all but franchises as one matter and at one time, and in one proceeding take it up with the board of utilities, as they call it, for instance.

In an analysis I have recently made of a property extending, broadly, all over the state, I satisfied myself that the cost would be about 2½ per cent; but it seems to me it probably would be less here, because this is not so extended a territory, and it comes under one general jurisdiction, instead of several. * * *

1090 The nature of the problem confronting a new utility or confronting the estimator of what it costs the promoter (call him or his function by whatever name you will) or has cost, to plan, arrange for, gain the essential rights to establish a public utility to provide the public with a necessary, useful, valuable service, is made fairly clear by this list of nine headings which I intend only as an outline, without mentioning every feature. However, that the general problem is there will not be disputed, nor will the fact that the work involved is essential and its cost is large—not including any payments made to the public; for if such are made they become an element of direct cost and should be included in the direct costs.

No old accounts that I have ever seen show what it has cost, and though present-day systems provide for it, they have not been in use long enough, and few considerable properties have been conceived and built in their entirety since the modern accounting systems have existed.

He does not think, as to properties extending back for fifteen or twenty years, that it would be at all practicable to expect to find these costs set out separately on the books of the company. Has never been able to find it and thinks he has excellent opportunities for finding it. There are two reasons for this, the accounting systems were entirely different and omitted these items in the general classification

of accounts. The second reason is that the expenditures themselves occurred prior to the organizaton of the accounting department of the company. They are generally more or less vest pocket memoranda and never do (until the present-day) become itemized in the general accounts of the corporation.

I am speaking of legitimate, ordinary expenses, and the way in which I get at them. The fact that I do not find it in the accounts does not mean that it has not been properly expended. It becomes necessary to estimate it upon a logical method. That I have tried to do, on my experience.

It takes about the same length of time after the conception of a project before it can be brought to fruition as it does to build the property. It takes about the same number and same type of people, for about the same length of time, as are subsequently found in the administration of the property and the legal department, substituting some engineering for some other items which are not ordinarily present.

Mr. Syme: That statement is especially true, I think, in the instant case.

Mr. Paine: I know nothing about this case, sir. I am speaking of general principles and what is reasonable. I am not saying what this property has cost. I am saying what it is reasonable it should cost.

Now, if those two propositions are reasonable, that is, that it takes about the same length of time and that it takes about the same class of man, whose remuneration would be about the same, the costs would be about those of administration during the construction period.

I have taken it here at less than that; I have taken it only at 2 per cent, instead of 3 per cent, because it is a very centralized property, and these expenditures are in any sense illegitimate or that anybody would fear to have appear on the books of the company as representing what they are expended for; not the slightest.

1091 Cost of Money—Paine.

I have included the company expenditures within either of two items, sometimes one and sometimes the other, either in the preliminary expense or in the administrative expense, during construction.

When I use the term "cost of money" here, I mean the cost incident to bringing it to this property and paid out to others, generally, to get the money attached to your property.

It will save time by reading from a rather carefully prepared memorandum on this subject.

Money must be secured for any particular enterprise, and there is a cost incident to the acquisition of the first money needed to inaugurate any enterprise, and there is a cost incident to the acquisition of the money for each enlargement of the property. There always is and always will be such an expense involved. It is some-

times, in fact usually is, merged in and becomes a part of "discounts," "brokerage," etc. on bonds or stock, or both, which may be sold.

"Discount," as ordinarily the word is used, is composed of two separable elements; the cost of the money—properly a capital expense, and interest adjustment—that is any variation from the face value to adjust the market's demand for interest on the particular security at the moment of sale.

I am here referring only to that part of "discount" which is incident to the expense of procuring the money with which to construct. The corporation might sell its securities "over the counter," which would involve an expense, or they may employ agents for the disposition of their securities, commonly known as brokers, underwriters, bankers, etc.

When we wish to rent or sell real estate, we employ a real estate agent to do it for us, because that is his business, he can do it and make a profit at a less cost or to better advantage than we could rent or sell the property for ourselves. There is a cost in either case attendant upon each such transaction; that is to say, the value of our own time and effort taken from our ordinary occupation, or the money payment to an agent, whose ordinary business it is.

Money can very rarely be secured at home by any utility, therefore, the necessity for acquiring capital which is necessary to construct in the greater money markets. Funds from these markets are invariably supplied through "bankers" or "brokers," who assume the risk of sale of the securities, and thereby assure to the utility the money as required, regardless of the money market, and the assumption of this risk is often costly. The bankers also make an investigation of the property from the engineering, legal and commercial points of view at a considerable expense, and on them falls the expense of selling to the ultimate buyer.

There is a world-wide competition for money. Money is needed for the stockyards of Chicago, for the water supply in New York City, for the tramways of Tokio, as well as the City of Washington. There is a cost incident to getting it. That cost is a proper capital charge, and the question is what is a fair amount to allow?

Until within two years there has not been available any actual data as to the cost. Taking advantage of a liberal view of some of the large dealers in securities and large utility operators, I gathered this data together, and together with other financial information and the comparative rating of various securities of various corporations, the cost of money may be estimated very satisfactorily in any given case.

The propriety of allowing this item in determining the fair value has been favorably passed upon by commission and courts in this country, but the clearest and most complete analysis is contained in the language of the English Justice Lawrence in the Railway & Canal Commission, Royal Courts of Justice, in the condemnation case of the National Telephone Company, Limited, vs. His Majesty's Postmaster-General.

1092 "Next, it is said that the cost of raising the capital necessary to contruct the plant is not an item to be taken into account in finding the cost of its contruction."

That was the contention of the Postmaster-General on one of the points in dispute.

"This does not mean the cost of raising the price to be paid by the Postmaster-General under this award. It means the cost to which anyone must be put who attempts to construct this plant. The method prescribed by the House of Lords for ascertaining value is to consider what it would cost to construct the plant, that is, would as a fact, cost.

"The first question then is, would it, in fact, cost anything to provide the necessary capital? The Company have given evidence by way of example, that it cost them 4.41 per cent to raise 4½ million pounds. No one has given evidence that it would not cost anything, nor has that proposition been put forward even in an argument. I know of no commodity and of no service that can be procured as of right for nothing. I am clear that, as a fact, money cannot be procured for nothing. It was further argued that this item of cost was to be attributed or charged to the business and not to the plant. In so far as this argument excludes the cost of raising any capital other than that required in order to contruct the plant, I agree with it. We have nothing to do with the cost of raising any capital other than the amount which would be necessary in order to construct. If the argument means that even this part of the capital raised should be attributed to the business and not to the plant, I am unable to follow it. It seems to be founded on some conventions of bookkeeping proper in their own sphere, but which have no relation to the problem under consideration, viz: what would it cost to construct the plant? The cost of getting the money to pay for the materials, labor, etc., has no nearer connection with the business than the materials and labor themselves.

"It has been said that it cannot be an element adding to the value of the plant. The thing transferred here is the plant 'in situ,' and the cost of construction, less depreciation, is the method by which the value has to be ascertained.

"It follows that every expense which is necessary in order to construct is an element to be considered, and it has to be considered because it is necessary in the process of construction. The thing to be transferred, say a pole, must be procured, transported and erected; each of these steps is necessary to the existence of the pole 'in situ'; each of these steps costs money, and raising this money is itself an expense and is one as necessary to the existence of the pole as any of the other steps.

"This is clear even in the case of one pole, but when the money required amounts to millions, it becomes clearer, for *one* one has millions of pounds in his pocket, or even I suppose, on current account at his bankers. The result of this is that this cost stands out and is seen clearly. It has not become merged in less conspicuous matters, as it may do in illustrations like motor cars and pianos put to us by the Solicitor-General. The price of these, as of all things in which there is competition, is governed by the market price, but even this, if the market is to be staple and sound, must cover all the items of expense necessary to production. It is not true to say that

this involves the proposition that the value of plant varies with the credit of the constructors.

"The cost to be considered is the cost to the hypothetical constructor who is a person in good credit; or, in other words, what it must cost any constructor, even the Postmaster-General, who has the credit of the State on which to raise the necessary capital.

"Again, this does not involve the conclusion that the cost
1093 of raising capital should be added to the price again if the property should be transferred a second or a third time; it is an item of value once and once only, namely on the construction of the plant."

I use as the estimated cost of the money which would be required to construct, at the present time, the physical property of the Potomac Electric Power Company, 5 per cent,—the cost in this country to the corporation of the very highest credit and in the sale of their senior securities with the highest rating and highest stability as stated by Moody's Analysis of Public Utilities.

To differentiate between interest adjustments, which the witness does not regard as capital charge, and cost of money, which he does regard as a capital charge, he gave 4 examples to make the position clear:

1. A thousand dollar bond with 5 per cent interest, and the bond is sold, it is presumed to the purchaser at $975. The net amount received into the corporation treasury may be $925. In such a case the cost of money will be 5 per cent, which is properly capitalized, $50. The interest adjustment required by the money market would be 2½ per cent of par, or $25.

2. Presume that the bond would be sold to the ultimate purchaser for $1,030. The net amount received into co-poration treasury is presumed to be $980. In this case the cost of the money would be 5 per cent, or $50, properly capitalized.

The interest adjustment required by the money market is here a premium of 3 per cent; that is to say, the market at that moment did not demand 5 per cent interest on that security. The interest adjustment here is $30.

3. Again, the bond sold to the ultimate purchaser for $800—a 4 per cent bond. The net amount received into corporation treasury is $750. In this case the cost of money again, we will say, being 5 per cent. The interest adjustment required, however, is here 20 per cent on this 4 per cent security, if the assumed market required 5 per cent interest.

Incident to his studies on this subject, he had the cooperation of Harris, Forbes & Company, Lee Higginson & Company, Hodenpyle, Hardy & Company, H. M. Byllesby & Company, Sanderson & Porter, Stone & Webster, and possibly some others—all strong, representive organizations, either devoted entirely to high grade bonds or to the management of public utilities.

They gave him the full information he asked for which was the rating of the corporation according to Moody, the actual price that they had paid to the corporation for its securities, and the amount they received for these securities from the ultimate purchaser. That

it was never made public before and it was with considerable hesitancy and the agreement that he should not devulge the names of the corporations in all instances, and that he should not use any of the data until finally prepared and submitted.

Every instance was confirmed, from buyer and seller, except one or two low grade securities which he did not bother about. Every high grade security was confirmed by both sides—both the buyer and the seller.

Dividing those instances into groups according to Moody's rating, the "B" group, or the higher "A" with little "a" 's attached, or "B" with little "a" 's attached, he found, he thought, sixteen or eighteen instances—sixteen utility companies, with nineteen issues of the highest grade bonds according to Moody's Analysis.

The cost of selling those bonds was 5 per cent, arrived at as the mean, the true average percentage in one instance, or the weighted average in another. The weighted average came out 5.1 per cent; the true, 4.9 per cent. He took the mean of the two as 5.

Then, he took the next group of "B" and found it to be 7.9 per cent cost in the same way; and that is how he arrived at the 5
1094 per cent to be used as the cost of the use of money. The Moody rating of the highest securities of this property is "A" or "A-A." That is of the Potomac Electric Power Company, and that does not take into account any discount or interest adjustment.

But this does not represent the cost to any of these companies of raising all its fund. He has followed Judge Lawrence's decision and while he does not think it quite fair he is not asked here to state the highest amount which will be justified.

(Cross-examination continued on December 22nd, 1916.)

The securities from which he determined the percentage cost of money as he testified to yesterday were all sold between 1908 and 1914.

1095 Promoter's Remuneration—Paine.

The 5 per cent promoter's remuneration consists of profit purely. He uses the word "promoter" differently from that which he has seen in other parts of this case by other witnesses. As he uses the word "promoter" he means that person or group of persons who, for one reason or another, always gain, that is to say, their purpose is always gain. The- undertake to stand behind a proposition and provide its necessary funds in good times and in bad, or, to use a slang expression, "to see the proposition through." It is not always easy to get money when you want it. It is generally needed by public utilities at just the wrong time. As a general thing money for utilities is raised in bad times. Mr. Justice Lawrence said: "I know of no commodity and of no service *thu* be secured as a right for nothing."

The Railroad Securities Commission appointed by President Taft, of which Mr. Arthur Hadley, president of Yale University, was chairman, said on page 30 of their report:

"We are told that the profit of the promoter represents a wholly unnecessary burden upon the American public, and that so far as this profit can be done away with it will be good for all parties."

I quoted Mr. Justice Lawrence's few words as very strongly and excellently expressing my views to the effect that no service can be secured as a right for nothing.

It is the opinion of the witness that an enterprise without the services of a promoter is inconceivable. It is necessary to induce any promoter or group of promoters to interest themselves in an enterprise of any kind to make such a preliminary expenditure as I have described under the development of the project. They have to provide the money and assume great risks in connection with it, and they are entitled to their gain or profit.

Without the assistance of a promoter, without his promoting the project, the project would fall by the way-side and never come to fruition at all, and at the first difficult point in its history it would fall by the wayside.

The only thing that would bring a promoter to provide the facilities in the District of Columbia would be that he would make a gain. It is never refused in the case of a new property, and there is the same reason for providing that gain in an old property when it first comes under state control that would be granted freely for a new company, otherwise the promoter had better have gone elsewhere.

Witness thinks the allowance of 5 per cent would be quite insufficient for a new property.

He cited in support of his opinion a decision of the California Commission in the case of the Central California Gas Company, the California Commission Reports, Volume 2, page 120, as being very clear.

In the case of the City of Danville et al. v. The Southern Railway Company, Interstate Commerce Commission 409-438, it is stated in an extract the witness has taken:

"This enterprise is a perfectly legitimate one. The men who have conceived and executed it are entitled to a fair return upon the money which has actually been invested in it. They are entitled in addition to a reasonable profit upon the ability to conceive and execute a project of this sort."

I cannot conceive of any enterprise not requiring the services of a promoter, as I use that term, be it old or new, whether the enterprize itself is old or new whether the business involved is old or new.

He outlined an experience of his own to illustrate the situation as follows:

"In one of the five largest cities of New York *City* (Syracuse) was a very prosperous street railroad company and a very prosperous lighting and power company under entirely different managements, and they had been purchasing power for a number of years, but were not able to buy power of sufficient regularity or with sufficient regularity and of sufficient quantity to meet their new demands. Knowing this and the persons involved, he proposed to them that they construct in the City of Syracuse a powerhouse sufficient for

their needs to act as a reserve for the hydro-electric power which was not satisfactory, and to supply them with the additional power which they needed. All the conditions were agreeable except that in the arrangements no provision was made for promotion or promoter's profit. He acted in that instance as the conceiver of the project. The promoter must be somebody of financial strength familiar with the business. It was agreed as to who that person or firm should be. They were unwilling to undertake the work, although they were also to be contractors, and although a profit of 8 per cent was agreed to, with all operating expenses. The contract was to run for 50 years, and the price of the power was to be subject to variation according to the production cost at the
1096 time, whether the changes in production cost was due to labor or fuel. It was an absolute impossibility to get money for that project, and that was in 1913, without the payment of an ample promoter's remuneration, and in explanation of the requirement the statement was made that "it is not because we cannot raise the money"—it was $1,000,000 or $1,500,000 which was required—"but it is because we have got to stand behind this property; we have got to provide the money for its extensions and enlargements, and we have got to provide it at the time the public demands it, and we cannot afford to undertake to do it unless we have a profit;" and the matter was dropped.

With the application of that percentage to the base indicated, it brings the total cost of the plant itself down to that point to $18,109,554. To this should be added the cost of attaching the business as calculated by Mr. Almert, $2,220,000, as being a reasonable sum determined upon a reasonable theory.

In his judgment, the allowance of 12 per cent on the base of $18,109,554 would be a fair estimate independent of the Alvord method of calculating it.

1097 Great Falls Power Site—Paine.

The witness is not in a position to place any estimate on the value of the Great Falls Power site.

1098 Property Rights in Easements—Paine.

He has made no estimate of the valuations upon the easements claimed by the company in the streets. That is a matter which requires an intimate knowledge of the locality, which I do not possess.

Mr. Barbour: Assuming, Mr. Paine, that this company is the owner of certain rights in the streets of the city of Washington; assuming that it is serving 25,000 customers in the City of Washington; that it has 200 miles of conduits in the streets of the City of Washington over certain private properties, and approximately 150 miles of overhead lines on the streets, and also across private properties; and assuming that these are property rights, that they have the legal right to not only the bare privilege of going over

but it is a right of which they cannot be deprived and which they are now actually occupying and exercising their rights to occupy, could you state whether or not such rights constituted an element of the value over and above these cost items to which you have been testifying?

Mr. Paine: Yes, sir; any property has a value and such property would have value. It should be taken into consideration in fixing a rate,—property owned by the corporation or used by it. But he is not in a position to place a value upon that right because he is not familiar with it.

1099 Development Cost—Paine.

This cost represents cost of profits withheld. * * * The attaching of business to the property is always a question of time, and here a very short period has been assumed for the growth of the business up to a point where the renumeration or rate of return is 8 per cent which he regards as proper. * * * The deficit amounts in the course of upbuilding to anywhere from 10 to 50 per cent according to the situation within which the business is expected to grow. Fifty per cent he regards as excessive, and does not think it is worth while. Thinks a property costing 50 per cent to attach its business might fairly be regarded as untimely. On the other hand, 10 per cent or 12 per cent, or anything up to 20 per cent, seems very ordinary and common.

Witness has made no estimate for the City of Washington as to the approximate cost per customer for securing customers for a property of this kind, but in numerous other places where he has had occasion to estimate it or determine it from the books, it ran somewhere from $17 in some very small places to $18, and often to approximately $20. In the Philadelphia case it was somewhere close to $20 per customer. In a property of just about this size. His firm recently had occasion to ascertain it, and it comes out about $18.50, which he considers a fair figure. Taking all customers by and large, that is a fair average, having in mind the competition which the company is under with the gas at a pretty low rate, he estimated it as $18.50 per customer.

Mr. Almert's program of construction and development, except in this matter of developing the business, is generally speaking, fair. Called attention to two points. One was the time in which the land was assumed to be purchased, and the other was the rate of construction progress. Thinks it ought to be hastened some in order to allow more time for the business development. Does not think Mr. Pillsbury's estimate of cost of reproduction, assuming a period of three years and no time for preparation is economically practical. It would take at least a year to prepare your plans for it. You might build the major property in three years after that year of preparation, but that would not allow anything for the attaching of the business after your property was ready to go to work.

He accepted Mr. Almert's figures for that under his letter F, $378,389. That is the working capital that has been employed by the company in the conduct of its business, exclusive of materials and supplies. In his judgment that is a fair amount. Has made no study of it in this case, but the result of studies in a great many other cases makes him place the limit as between one and one-half to two months.

Assuming a gross revenue of $2,500,000, that would be a little more than $200,000 per month, and two months would be $400,000, and a month and a half would be $350,000. This is just about the normal for electric lighting and power property which would be in addition to materials and supplies. Sometimes working capital includes materials and supplies, but it would then be a different sum. He examined the site of the power plant of this company at Benning and in his judgment has not purchased more property for that purpose than it reasonably should. It is a good site for a powerhouse; you could not have a better one.

There is no question as to the desirability of it at that time.

Mr. Barbour: In addition to the facts which I have already stated, assume also, for the purpose of your response, that shortly prior to that time the maximum rate that this company, was permitted to charge the public had been reduced from 15 cents to 10 cents per kilowatt hour, and that its earnings had been under the reduced rate. They were both in the same city though their plants were differently located. There was some conflict as to rights of territory between them.

Mr. Paine: I would have advised at that time, on such a showing, that the property be purchased at that price, because prior to that time it had become recognized that the best service could be rendered to a community by a single organization, and that is made apparent by the general movement toward the unification of the same kind of facilities in the same community—I am speaking of the companies' point of view—and the territory was obviously very undeveloped. * * * Since that time your earnings have run up very much per capita, showing that there was a great opportunity for growth, and further that its present earnings carried it as far as cost was concerned, as nearly as the slide rule will show, to 6 per cent. I don't know just what it is. Further, by the unification of the two properties the operating expenses of both would be reduced, and the unified property would be of such a size and nature as to permit much more economical development. Those are the main and essential reasons which would lead me to say it was a good purchase at that time.

Mr. Barbour: Now, from the standpoint of the public and the consumer, what would you say as to the wisdom from the public standpoint as to whether it was a wise thing to do?

Mr. Paine: There is always the desirability of one property, thus

saving duplication of investment, and what is perhaps equally as important, the annoyance of duplicate systems occupying the community streets. Those are the two major reasons which are now so well established, but it is a matter easy of showing that it was then recognized that that was good public policy.

Not only the interest of the stockholders in the two companies as such would be promoted by that purchase, but the interest of the community and the public served by those companies would be promoted by it. The great advantage to the company coming in its ability to do things on a larger scale and its ability to serve the public to better advantage, the public interest being in the elimination of duplicate facilities. The subsequent history of the combined properties is the only justification for it.

1101 Cross-examination—Paine:

The employment of this witness for the last twenty-five years has been mainly by large corporations. Such employment has not been continuous. There have been times when he has been in other employment as he is now.

The association of electric railways of the United States is for the interchange of experience particularly the part he had with it, the engineering of ways and methods. It is not in any sense a promoter.

The National Electric Light Association is of a similar character. The full membership is limited to any organizations engaged in the business. Witness is not a full member but is in that class of membership permitted to consulting engineers.

He received a letter from Mr. Almert asking him if he would be available at this time to testify for the company. It was some time this month he received Mr. Almert's report. He received the summaries and the written portion of it. When he received those written portions, he saw at once that it would be impossible for him to derive from the pages that were sent him the base on which he would wish to start in giving his testimony.

In his estimate he used "labor" in the ordinary sense, the daily wage labor in which he includes gang foreman. He distinguishes between the gang boss or foreman and the supervising foreman, who may have several jobs in hand. Does not include engineer who is on duty in the field; nothing but the labor which may be ascribed to the particular job, the building of a manhole or a bit of conduit.

The superintendent of field forces would be a part of the indirect because his time is devoted to many individual jobs, and, therefore, becomes necessary to apportion. It is only the labor of those foremen who have charge of, say, half a dozen or so men. There are instances where a given foreman may have more than a gang of 7 or 10 men.

Includes in that all engines, tools and locomotives. The labor involved in it is direct cost. The things themselves are generally part of the tools and equipment as a separate item and of which I have made no estimate for here, assuming that the tools and equipment, miscellaneous property of this company now, as an operating con-

cern, would be substantially that which would be used during construction.

Tools and equipment were not assumed in Mr. Almert's base. I assume those to have been of an equivalent amount to that given. He does not add that to the figures that he took from Mr. Almert's report. I have generally found that the operating company requires in its miscellaneous items of that sort substantially the same tools that are required during construction, substantially the same amount for purposes of repair, and that sort of thing; and, it being impossible to make an accurate estimate of the tools which would be required during construction, I assume that figure to be substantially the same.

Automobile transportation during construction is assumed to be a part of the department expense involved. The automobiles, for instance, used by the operating force would be included in the 6 per cent for supervision. The capital value of them would be included in this miscellaneous property, on which there would be an interest charge. The operating expense would be part of either the supervising force, engineering force or administrative force, whichever was using them. The cost of purchasing is handled as a separate purchasing and stores expense. He combines them. They are a part of the indirect cost.

Freight is a direct cost. He assumes that Mr. Almert has included that in his base, as well as hauling because those are items which are attributable directly to the individual job.

The item of supply expense, as he used the expression, including purchasing, traffic supervision, warehousing, he has given 2 per cent on the base as a whole, labor and material, including everything whether it went through a store house or not. It would be very much more if everything went through a store house.

He would assume structural steel would be part of the total cost of the property and that the 2 per cent would apply on that. Could not tell what it would be for that alone.

For gravel, broken stone or sand, it would be very small. There would be the purchasing, including field inspection of it and for quantities including supervision.

Amount on turbines unites would depend upon the method of construction.

1102 There would be the purchasing expense and the accounting for the parts, whether they actaully went into the storehouse or whether the power house itself was regarded as a storehouse during construction.

He can analyze the 2 per cent and apply it to the component parts but — is not such a thing which he does because experience has shown it to be a reasonable sum to expect will be spent in the carrying out of the work in the way he means; he thinks it would be a little less for a street railway company than an electric light and power company, because so much of the property is on wheels in a street railway company. That is equally true in regard to each of those items. Would not want to assume that all engineering cost

6 per cent on every item. The Engineering on some items will amount to more than the item itself.

Witness accepted and assumed the figures which Mr. Almert gave him as to the cost of material and labor.

Those figures are not the same that are found on page 7.

He does not know anything about what was given in the report but only what was given him personally.

He did not take the responsibility for deducting any indirect costs from those figures which appear on page 7, preferring to get those directly from the man who made the estimate.

The figures he assumed were: Land, $830,968; transmission and distribution, $5,920,867; buildings and miscellaneous structures, $916,076; power house and substation equipment, $3,302,462; and some miscellaneous parts which he understood to be in substations, $8,110, making a total of $4,226,648, as the item "C-D" on his tabulation. Then, miscellaneous property, $122,833; and materials and supplies, $129,133, the sum of which two is $251,966, and appears as "E-G" and working cash capital, "F," $378,396; the basic figures which he gave, representing labor and material, are $11,608,845; and that was assumed by the witness to be correct in order to apply his percentages in the way he has applied them. The integrity of his percentages would depend upon the integrity of those figures. The figures would have to be changed materially to vary the percentages. These costs are in proportion to the construction costs.

The percentage would remain constant in any property of this general nature. He does not know whether Mr. Almert's fifteen million nine hundred thousand contains exactly the same items or not. Generally speaking, he would say, in a rough way, that his $16,169,000 was, in a general way, comparable to the $15,922 000 that he found; but I assume no responsibility for the other or a knowledge of what it contains. He purposely avoided making an analysis or knowing what was in the report. It is not the way he likes to go at it.

He cannot show how much he allowed in his report for legal organization and franchise expense.

Made a very careful statement of exactly what his various percentages contained. Is not able to tell how much in this instance went for one item or another.

No way he can ascertain from his testimony what allowance he would have made or that he did make for legal organization and franchise expense, because he did not know how to figure it that way. That is not the way he has been accustomed to looking at this.

Mr. Almert's method is not a new and unique method of doing these things. He is familiar with it, but not the detailed figures.

The only truly comparative basis, he thinks, is the final figure. As he clearly stated yesterday, the two methods differ; but they should, in the hands of competent men, work out approximately the same in the end.

The cost of the money under the witness' estimate would be 5 per cent on $16,169,245.

He figured the promoter's compensation on the same basis.

The conceiver is only part of the promotion. The conceiver does not get very much as a rule. The conceiver is something like the inventor. The man who does the real work; those who provide the money — depends upon what extent he gives assistance.

There is no way to allow between the conceiver and the promoter the $800,000. It depends entirely upon how much each does, but together they ought to have that much.

You cannot possibly conceive how this $800,000 is to be divided between conceiver and the promoter when Mr. Almert allows $650,000 to the conceiver. The two items have nothing in common. One is the element of the other. Mr. Almert's view of "conceiver," I do not know. I do not know what his definition of "conceiver" is, or what his duties are.

He does not know how much should be paid to one who came to Washington and conceived that it ought to have an electric
1103 light plant here. It would depend entirely on what else the man did. If he simply talked through a newspaper and said you ought to have an electric light and power plant here, I do not think he ought to get anything. The whole business of the compensation of the conceiver would depend on what he did. I know very well what the promoter, including the conceiver would have to do. He would have to provide preliminary studies which would involve some engineering estimates; he would have to make up a prospectus. If you will look at my memorandum you will read precisely my prepared list in the record, and the witness then re-read the same to the Commission. It would be a very difficult matter to make the preliminary outline design and estimates of cost of such a plant as this because he knows, having tried to make estimates of reproduction.

He does not know to what extent experience of other people has guided him. Very much interested to learn that there was relatively little rock construction—rock excavation. Much surprised on learning in Philadelphia that there was a great deal. It is a matter of individual study.

Uncertainty and risk of the success of the enterprise affects the measure of the compensation the promoter ought to get.

He put it at the minimum here in Washington.

1104 Remuneration—Paine.

It is not true that the general history in cities all over the United States similar to the size of Washington that the supplying of electrical current for light and power is a remunerative business. There are many instances wherein it is not remunerative.

He does not know that the profitable nature of these public utility enterprizes, such as street railroads, electric light and gas companies, has been such all over the United States as to require the formation of commissions so as to regulate their prices so that they may be reasonable. Regulatory commissions have been established all over the United States.

The first occasion for a valuation, as a rule, is to fix reasonable

rates, but that is by no means the first act of the Commission, as he has known commissions. It was not so in New York or in Massachusetts. They regarded service as of the first necessity, and equalization of rates and the elimination of special rates, as things of the first importance.

The remark of Mr. Justice Lawrence, as quoted, had particular application to a promoter.

Some of the most expensive right of way I ever saw—some I paid least for was the most expensive.

If the company didn't pay a penny for the property rights, that could enter into the cost of reproducing this property, if, in the judgment of the estimator, it would now cost something.

In the sense of an investment, in dollars and cents, which the company have to part with, pay to somebody, before they have the right to go out and lay their system in the streets, I do not think it is properly a part of that. It may be added to that. Under your proposition it is not cost. I say it is not part of the cost. Your first question was, if it was not a cost, is it a cost?

Mr. Syme: No, that was not it. But it resolves itself into the same thing. If any other franchise that cost the company nothing as an investment to be added to the reproduction cost of property for the purpose of making rates?

Mr. Paine: I think it is purely a legal question, which we are waiting for the Supreme Court now to pass on, in the Passaic Gas Company—I have forgotten whether it is called Passaic or Paterson. It is in New Jersey. There have been three or four decisions; some are in favor of allowing it and some are not.

1105 Development Cost—Paine.

Mr. Almert gave the development cost at $2,115,323. He simply adopted the Alvord figure as estimated by Mr. Almert, with the statement that it looked reasonable to me, and independent of that, that 12 per cent on the base preceding it was reasonable, and I have never known it to run from 10 to 15 per cent.

1106 Depreciation—Paine.

Witness thinks that accrued depreciation should be given consideration, but does not think it should be a deduction, necessarily. I would find out what its nature was and what the circumstances were upon which it arose; and if during a hypothetical period, reconstruction period, a hypothetical period of this nature, depreciation must be figured, then it must also appear on the cost of development, and so amount to precisely the same thing as though it was not considered at all. It would be the offsetting entries.

The component parts of a power house installation have a service life but not the power house itself, necessarily. It is true that a power house has not an indefinite life. The best engineering authorities assume a hypothetical age, and then assume either a straight line method of calculating the cost of depreciation or sink-

ing fund method. I do not want to appear in any way to be sidestepping the question; but when I discuss "depreciation" I like also to discuss the forms of it, because I think the different forms of it should be treated independently, and I like to discuss the cost of depreciation.

He does not know how to discuss the facts without discussing the cost of it.

First, let me outline in a general way what I mean by depreciation. I think it is composed of three elements, generally speaking, and I will include, first, neglect, which is a failure on the part of the company properly to maintain its property. Secondly, public demand; that is, the substitution of one form of property for another, not necessarily done because of economies, but because the public wants it. Thirdly, obsolescence, which is an economic question purely.

Chairman Kutz: The kind of depreciation I have in mind is not included in any of the three classes which you mention. I am assuming that there has been no neglect.

I am assuming that there is no such thing as obsolescence; that the plant will be permitted, the different elements of the plant will be permitted to remain in service throughout their service life, and that there is no demand on the part of the public for improvement. Will not a dynamo wear out?

Mr. Paine: No, sir.

Chairman Kutz: Have you ever known them to wear out?

Mr. Paine: Never.

Chairman Kutz: Have you ever known an engine to wear out?

Mr. Paine: No, sir.

Chairman Kutz: Has a boiler ever worn out?

Mr. Paine: Not beyond the repairs which would put it in perfect condition.

Chairman Kutz: Has it ever worn out to such an extent that it would be cheaper to buy a new one than to repair it?

Mr. Paine: Yes, sir—not worn out, but up to a point where a new dynamo——

Chairman Kutz (interposing): Now, talk about a boiler.

Mr. Paine: Yes; a boiler is first rate.

Chairman Kutz: Boilders do not last forever, do they?

Mr. Paine: Pretty nearly. I do not see why a water tube boiler—a fire tube boiler does; but a water tube boiler, such as would be considered in a property of this nature. I should say did not wear out. It becomes obsolete and obsolete generally because you are now requiring higher steam pressure, and also obsolete because an old boiler occupies more space than you can afford in your power house building.

1107 Chairman Kutz: Do steel rails wear out?

Mr. Paine: Yes, sir.

He would put the wear on steel rails in maintenance and repair, which, if too long deferred, becomes neglect; but steel rails should be replaced out of the annual earnings of the company. Generally,

he would like to see for that group of expenses and including those, perhaps, subject to public demand—he would like to see a sufficient fund in hand to permit the equalization of charges, rather than have them lumped in large amounts at the same time. But in his judgment it would be a relatively small fund; not in any sense to represent the expired life, or the worn out condition of any of the various parts of the property, but because in some years you may have to relay a great many rails. It is desirable to have a fund so that all those expenses will not be included in one year's statement. That is about the purpose of it.

He has always strongly opposed the creation of a reserve sufficient to represent what somebody estimates may be the obsolescence of a property. He has always felt it injudicious to attempt to deduct, as a practical matter, any wear and tear from the valuation of a property, for a good economic reason.

The first purpose of a commission of the interest of the public is service. I am not going to talk about service value. But the purpose of the installation, to start with, is to render a certain service, and the necessity for doing so is a clear liability on the part of the corporation. If it cannot fulfill that service, that is, if it neglects its apparatus to a point where it is unfit to render the service, then to deduct it affects the credit of the company to such an extent as to perhaps make it impossible for it to get the money and go on and make repairs; whereas, if the requirement of the company be that it render the service, then it is a liability on the company which it cannot perform, and there is receivership.

I do not believe in putting aside large sums of money to represent that portion of the theoretically worn out portion of the property.

As I sat here a few moments yesterday, I heard the question of that being 75 per cent, or some other percentage. I personally have never known a property or seen a utility at any time which had come down so low as 80 per cent which I thought would render service. I do not like to treat it exactly as a theory. If I may, I would like to cite one or two instances which have disturbed the theory in my mind very seriously.

When I was appraising the property of the telephone company in the State of New York, among the property was some conduit, three-inch duct, which I was informed was valueless for their purposes and should not be included; therefore a charge against depreciation.

I was very much puzzled about it. It worried me a great deal. It did not seem right to me to sacrifice that money. I hesitated a long time as to what to do. I instituted some studies to find out why, and developed the reason, which was that it was no longer economical, in such a situation as New York, to use cables of less than 800 pairs, and preferably 1,000 pairs, and that they could not manufacture a cable of that size which would go into this duct. They also supported that statement as to being uneconomical by showing what it meant in the buildings and all sorts of places. It did not seem right to me that that very expensive piece of property should be abandoned and, therefore, a charge against the rate payer—using

"rate payer" in the sense of those who receive service and pay for it at a rate. I would not do it. I would not act on it. I held it along for several months, and then they came in, all smiles, and told me that due to a recent invention they were able to use a little smaller wire and accomplish the same purpose, and that the Western Electric Company had found a way to lay up a thousand wires in a cable that would go into a 3-inch duct. There was no question then of writing them off.

There is one other recent situation which has confronted me, and that is a power house right across the City of New York at a place known as Edgewater. It is near the Fort Lee Ferry. It was built twenty-five or thirty years ago in just about what appeared to me to be the most ridiculous place a power house could be built. It seemed a silly and foolish location. Now I am called upon to appraise this property; and here is this blooming power house, that is now only used for peak loads, and used for those peak loads incident to the moving of a large crowd on a certain day up that hill.

1108 Its operating cost is about 3½ cents a kilowatt hour. The major source of power—it is also a substation now—for moving the cars in that vicinity came from a power house already loaded to the guards. This was a necessarily peak load station, or else it must take power from some other source. Obviously the most efficient source was the Essex Station, just completed, and probably one of the most efficient in the world. It is a beautiful station. In order to utilize power from that source there has to be an expenditure of money for cable, conduit, overhead transmission and receiving apparatus.

I made some calculations and found that approximately, as near as I can recall, the cost to reproduce would be $375,000. It would cost about $300,000 in conduits, pole line, and so forth, and receiving apparatus to take the power at its place from Essex; that even with the Essex station producing power at about 2¼ mills, about a quarter of a cent a kilowatt hour, and 3½ cents per kilowatt which it was costing to produce at its power house, it was economy to continue the use of this power house in its present old-fashioned form until it could receive power as a substation at a cost of $80,000. The old power house has then an economical value of 50 per cent more than the cost of reproduction.

Now, should you write that off? I do not think so, while the property is in use.

When it becomes uneconomical it ought to be amortized out of earnings subsequent to its abandonment and out of profits incident to the employment of the new utility which takes it place. That is my conception of it. There is economically no difference between amortizing it and continuing it and paying interest on it. You cannot amortize capital. It is a pure mathematical question as to which is the more economical to do when they replaced all those dams on the river.

The rate of return does not enter into it. If that be a reasonable rate, it becomes an economic question.

If you have property which is displaced and which was acquired

in the early stages, not only of the company's development, but of the art, then it is a question, in my mind, a very serious one, whether it is proper ever to write it off when it has failed. In the case of my old company up there in New York State, its first lot of insulators were the best the art provided; but they could not keep current on the line, and they were replaced as quickly as possible with a better one. The new insulator cost less money, and so far as I know has given no trouble. The old is gone.

To place that in the operating expenses of the new company would have meant receivership and bankruptcy right off. There is no question about that, it was a large sum of money. That is that company's contribution to the development of the art. It is a serious question in my mnid if it ever ought to be allowed.

1109 Redirect examination—Paine:

"Base."

Mr. Barbour: I understood you to state on cross-examination, Mr. Paine, in response to a series of question- by the Chairman, what items or what elements you had assumed to be included in your base by Mr. Almert and what excluded, that is, the base of material and labor. Now, refer-ing to page 3 of Mr. Almert's report, it is there stated in detail what elements are included in his base of labor and material in addition to what, on page 5, he indicates as "direct overheads." Now, my understanding prior to that cross examination was that Mr. Almert had eliminated from his base costs of labor and material these items shown on page 5, omissions and contingencies, detail engineering, insurance and general contractor's fee, and that that furnished the base on which you had made your calculation. In consequence of the responses which you made to the Chairman's questions, I understand that there are possibly other elements which you had assumed were eliminated but which possibly may not have been eliminated. I would be glad if you would go over those items as enumerated on page 3 and indicate what, if any, of them you had assumed were eliminated.

Mr. Paine: May I answer as refers to page- 3 and 4?

Mr. Barbour: Yes; of course, explain all those items as contained on pages 3 and 4.

Mr. Paine: The items "a" and "b" under material are properly included, that is, material cost and freight are properly included in the base and are not included in my indirect costs. * * *

That is to say, I assumed that the base contained material costs and freight. I did include storeroom expenses in my overheads—indirect cost—assuming that it was not included in the base. Hauling costs I assumed to be in the base, and I did not include them. Wages for common and skilled labor I assumed to be in the base, and I did not include them.

On page 4 I assumed that of miscellaneous field expenses the base included transportation of men and loss of time, but I included in

my overheads, supposing it to be omitted from the base, timekeeping and clerical assistance.

Under field supervision I assumed that the department expenses were not in the base, and included them, whereas, the subforeman's salary I did not include in mine, supposing it to be in the base. "Subforeman" as a word is used here as indicating the gang foreman.

Chairman Kutz: How about the subcontractors' expense and profit?

Mr. Paine: I included that. I think I included all that as a part of my supervision, so that in order to get a true base for the application of your percentages, he would have to eliminate further these items of storeroom expense, timekeeping, clerical assistance in the miscellaneous field expenses, and the department expenses with the exception of subforeman's salary.

* * * Waste and breakage he assumed to be part of the material and in the base.

In other words "In my testimony I spoke of including in stores the breakage in stores, but that is a very very small item, whereas the waste and breakage as here referred to evidently is waste and breakage incident to construction, so that I assumed that to be included in the base."

In the construction of such a plant as this, for waste and breakage he would allow nothing on such items as machinery, etc., which are purchased complete. Roughly a per cent and a half probably on such materials as enter into conduit, from a per cent and a half to 2 per cent, including gravel and sand, taking the average of material entering into a conduit, including the ducts. He would include nothing for cable because the cable is purchased by length to fit the manhole. For poles and overhead lines about from 1½ per

1110 cent to 2 per cent of the material.

He assumed waste of cable in splicing to be included in material purchased. Cable is of a certain length. It comes enough longer to make the splices, but he would anticipate a destruction in poles. That comes mostly in the grading of a line. There is the necessity for erecting sometimes a higher pole than appears on the inventory, and that is where I ordinarily regard it. I don't know where else you would find it. It is loss of material incident to construction, and the top of the pole which is cut off to grade the line is not recoverable. I do not know how Mr. Almert has made his units on poles, whether on the 5-foot lengths or not. That is on the material, but not on labor, of course.

You buy poles of a certain length and you pay for them in 5-foot lengths. If you waste 5 feet off a pole you have not already paid for it (in a reconstruction estimate) because when you come to the inventory you will find it is 5 feet short and it takes the lower price. In other words, you might have used in the construction probably a considerable number of 35 foot poles which have to be cut off in the grading of the line.

If the elimination of these elements resulted in the reduction of your base, could those percentages as testified to by the witness on

yesterday could be applied to that new base as he has already applied them to the assumed base.

This concluded the examination of this witness.

1111 HOWARD SPENCER GRAHAM, another witness called in behalf of the Potomac Electric Power Company, testified January 3, 1917.

After being duly sworn, he stated he resided in Philadelphia as a banker and a dealer in investment securities, and is a senior member of the firm of Graham & Company of Philadelphia; engaged in banking business over 20 years; has had considerable experience in financing public service companies and handling the securities of ingoing concerns.

It involves, in the first place, a mental satisfaction of the proposition which is presented to you, that is the equation being substantial and the legality of it being sufficiently satisfactory and the history of the property and the possibilities of the future appealing to you as being secure in every respect prior to making an investigation, and if those equations seem to fit, then our next step usually is to proceed by so-called expert examination.

Before employing a so-called expert, we usually confer with our counsel and lay the general merits of the propositions before him in a legal way to find out if there are any legalities that would be an obstruction to the proposition. If the information we get is satisfactory in that respect, we employ capable engineers or examiners to look into the property from a physical standpoint, accountants to verify the earnings and also to form an opinion as to what enlargement of the proposition there may be in order to justify the venture of money.

He has never undertaken to finance a new construction. He always considered the risks were too great to venture capital in.

Has had considerable experience in financing extensions to old companies or consolidations of older companies.

The method pursued in that case is the same as far as the examination of the proposed extensions and the possibilities of the benefit to be derived from them, both from a public standpoint and the standpoint of the welfare of the company.

Further steps depend upon what the company has in its treasury to raise the money necessary for such extensions. If it has capital resources which are easily marketable, such a quantity of equity existing back of those securities and the earning power sufficient, we are ready to purchase those securities at a price that is fair to the company and fair to the investor. By "treasury reserves" he means a going concern is constantly called upon to extend, and a comprehensive scheme of capitalization will permit it to meet those extensions by unused treasury resources usually; that is, if the scheme is originally well put together they may either have stocks or bonds or both upon which they can realize in order to meet the necessary extensions. You investigate the affairs of the company —its accounting end; and its plant from an engineering stand-

point. These investigations are not conducted by his own force. When securities are bought from enterprises, he has usually coupled with the contract to purchase the right of entry into that property by engineers and accountants of our own choosing so that we can be satisfied from an independent standpoint, not our own judgment and not the company's judgment, that the affairs of the company are in satisfactory shape, and that it is conducted in a proper way, and that we are justified in buying and selling those securities to investors at large. To do that we usually employ enough lawyers, those whom we consider to be the best in that line, together with certified public accountants and engineers of standing and whose reputation is known to the investing pubile at large.

So far as my own experience is concerned, that expense is usually borne by the bankers. In 99 times out of 100 in my own case it has been paid out of my own banking resources, but sometimes the company may be willing to share that expense or even all of it. It is usually better, however, for the company not to have a hand in that because they then become interested in a matter which we do not want them to become interested in, and for that reason we usually conduct all of these investigations under our own supervision and our own appointees.

Almost invariably the companies have reports from engineers which are also submitted to him, and his engineers. It is his business to verify those reports and they are usually verified and he can safely say this is the usual method pursued by bankers in conducting affairs of this kind. It certainly is with responsible bankers and those who are concerned in their clients' welfare, which, of course, involves considerable expense. The legal expenses
1112 are high and the examining expenses are high, in addition to which fees we are called upon to bear the daily expense of those on the ground.

If the examinations are made and they do not buy the securities, they are out-of-pocket, but if they do buy the securities they undoubtedly exact a profit, which is absolutely separate and apart from the rate oc interest or any discount at which the bonds are to be offered to customers. It has nothing to do with them whatever. It is the cost of acquiring money.

If our own judgment coincides with all the reports and examinations, we enter into negotiations with the concern and tell them we are satisfied with the facts and figures presented and the possibilities of the enterprise. We enter into negotiations with them to purchase the securities and to provide them with the money.

Underwriting and purchasing is one and the same thing almost in our business. If you commit yourself to underwrite or buy security you have got to pay the money over to the company or else fail. The basis of that compensation will be practically a percentage. It would be very difficult to state on what definite terms an extension could be financed for this reason, that the securities of a going concern, with a well established credit and a high standing in the community, without complications, in other words, a desirable security in connection with which you would not have to do very much work in order to exploit it to the investor,

you could afford to buy at very much less profit than an extension of a concern that was not so favorable and so well known. If a company had treasury resources to cover part of an existing mortgage, and that mortgage already had a known market equation, it could be done at a very slight cost to the company. * * *

If a good going concern wanted $300,000 or $400,000, and was earning over double its interest, and its affairs were in good shape, I would be very glad to buy the bonds, if they were good, safe, stable bonds, of that concern for a point or a point and a half profit. That would not mean that I would secure that profit, because there would be certain overhead expenses of my own such as advertising, etc., and I might realize only 50 per cent of that price. That is on an extension for a reasonable amount of money, but if it came to financing a very large extension or for the general uses of the company in additions and repairs and upkeep and one thing and another, a larger profit would necessarily have to be paid.

Mr. Barbour: I want to state this case to you, Mr. Graham. Suppose we assume that a company such as the Potomac Electric Power Company, occupying the streets and being the only electric light company in a city such as Washington, with many miles of conduits and overhead lines, street lighting, distribution system, etc., should be from any cause suddenly wiped out or blotted out, and it was known previous to its wiping out to have been a successful company, earning a fair return on the capital invested in it, with the uses of electricity well known in a city such as Washington having a population of something like 300,000 people, and it was necessary to raise approximately $20,000,000 at once to reconstruct that property, the money to be furnished through a period of five years in approximately level amounts per year, with the same management that had previously been operating the company, would they be compelled to pay commissions to bankers for underwriting or securing that money for them? * * *

Mr. Graham: Yet your books were not wiped out? * * * Why, certainly it could be financed under the known conditions and under the history that the company had had. * * * You would have to raise that money in different forms or in different ways. You could not go out and place one class of security on it, because you could not sell, with any degree of satisfaction or confidence, a mortgage bond on the entire cost of property. The risk to the investor would be too great regardless of what the earnings had been in the past, and, consequently, you would have to sell bonds and stock or some other form of obligation, and it would bring in different prices on the different classes of securities which you sold. * * * It would cost, in my opinion, from 18 to 20 per cent to secure that capital.

1113 Mr. Barbour: The case I cited to you was the case of a company, a known industry, and to replace a company absolutely wiped out but whose prior history had shown it capable of earning a fair return on the investment. Suppose in view of that there was a company with some new, lately invented method of illuminating, a thing that had been demonstrated as feasible, say, in a laboratory, and had also been demonstrated in small plants

in different towns through the country in small places sufficiently to show that it was feasible from a mechanical standpoint, and these same gentlemen who had formerly been operating the Potomac Electric Power Company got together and wanted to raise $20,000,000 to establish such a system in the City of Washington, do you think it would be possible to finance such a scheme? * * *

Mr. Graham: I don't think the money could be raised at all. I certainly would not undertake to be a party to it, because capital only flows into channels which are established. It does not flow everywhere. Of course, I speak from an investor's standpoint and not from a speculator's standpoint, and for any investor to put his money in a laboratory test or a possibility is not investing his money. He is speculating on the possibilities of the future. * * * Those things are not done in that way. They are evolutionary. The development of the railroads of the country and the establishment of industries or of utilities has been done in an evolutionary sort of way. A few men get together and put a few thousands or a few hundreds of thousands of dollars in what they infinitely believe in. If what they infinitely believe in is later on demonstrated to the public, the public are glad to embark in such business as they take the initial risk in.

In any stage, it seems to me, the expense of procuring money would have certainly to be incurred, because even if the progenitors of an enterprise lose their money they at the time would be paid what they considered to be the equivalent of the money, the equivalent to the value of the profit. If they did not materialize that is their hardship. Most of the time it did not materialize, I think.

Mr. Barbour: I will state this case to you, Mr. Graham. Assume that the Potomac Electric Power Company is the result of various smaller companies organized, say, 25 or 30 years ago, with small plants located in different parts of the city that were gradually, through the course of years, consolidated with each other, finally resulting in being consolidated into one company, the present Potomac Electric Power Company, which property aggregating in the neighborhood of $20,000,000, would you say that this expense of financing to which you have referred—these bankers' commissions—would have to be incurred by these companies in one form or another?

Mr. Graham: Yes, sir; I would say so undoubtedly. I look upon money as being just as much of a commodity as a cast-iron conduit or a wrought-iron conduit; that people have to have money to accomplish anything in life, and, unfortunately, they have to pay the price of that money. It doesn't make any difference what it is, whether you are building a utility concern or whether you are paying a doctor's bill, that money is a commodity, and it is a fact that a concern which is prosperous and well-off, a concern which has a well established credit and the confidence of the public at large, can secure that money at a less cost than a concern that is not so favorably established. If a concern is on the eve of establishment it can only secure that money by paying a very large amount for it, and it probably cannot secure it then from bankers but will have to secure it from individuals who may gather together

and take the risk, and if the enterprise is successful they may retrieve themselves by going to bankers and selling a portion of those securities after the risk has been eliminated. I think it is not generally understood that the banker is practically a partner in an enterprise. He has his reputation at stake in two ways: In the first place, in helping the enterprise toward its fulfillment, and, in the second place, establishing a safe security to the investor.

These costs are entirely independent of and without regard to the rate of interest at which they may be sold. It is the cost of acquiring the money.

1114 Cross-examination—Graham:

We charge for providing the company with money, but we do not get that money ourselves until we have earned it. In earning it we have to sell those securities to the public at large. Your question implied that we first sold them to the public at large and then paid the company. We take the risk of not being able to sell those securities. We take the risk of selling them and we give the company the money when it wants it.

If you were the president of the bank and agree with me to sell so many securities, we would agree to provide you with money when the terms of agreement called for it upon the delivery of those securities. We do not get any compensation whatever until we sell the securities and get the money back from various individuals or institutions to whom we may sell them. You are in your money and we are out ours. It may be a period of six months or a year before we can get our capital back, and when our capital does come back it carries with it a profit or a compensation.

Referring to the case of the Potomac Electric Power Company being wiped out and getting the money to reconstruct it, it would not be possible under such conditions for the company to sell those securities direct to the investors at all without the necessity of going through the banker or the broker. He could not sell them without getting together a certain very speculative group and saying—"Here we have bitten off more than we can chew, and we have got to get rid of it, and in order to do so we have got to give you practically all our profit in the thing," and then people will come in and join them. There would be no market for it until the plant was going, and all that we would have to show for it would be the books of the concern before it evaporated.

The banker gets his compensation regardless of the rate of interest or discount at which they are sold. The discount would comprehend it but the banker has nothing to do with the discount.

1115 Ralph Crowell, another witness, was called and being duly sworn testified that he is the purchasing agent of the Potomac Electric Power Company; and resides here in Washington. Has been in the employ of the company for 17 years and that particular position for 8 years; contracts for and purchases practically all of the supplies bought by the company, and a good deal of the equip-

ment. Practically all of the material is purchased through his office.

That he made a compilation of the various materials purchased by him approximately, July 1, 1917, compared with current quotations, and produced sheets thereof which were introduced in evidence with the statement that the first sheet is a summary of the remaining sheets; and explaining the sheets with *with* items thereon numbered beginning at 1 and extending to 256, said—"The first column of figures represents actual purchases made on July 1, 1914, or near that date. The second column of figures represents similar actual purchases made near July 1, 1916, though the prices do not represent delivered f. o. b. Washington in all cases though they are comparable in every case. If they are f. o. b. Washington in one case, they would be in the parallel case. Ninety per cent of them would be f. o. b. Washington.

He does not know what Mr. Almert's figures are and the witness di- not compile those prices and they were put in by Mr. Almert after the report was made.

The last column represents recent quotations; not necessarily actual purchases, however. In a good many cases they do represent actual purchases.

All purchases in 1914 were made under the contract of July, 1914, and in the same way purchases made in 1916 represent prices as of the date of the contract, rather than of July 1st. All of the prices are supported by actual bills in the company's office, and paid by the company. "I am referring now simply to these first two columns." The third column represents actual quotations and not actual purchases, necessarily; and immediately following the two columns showing actual purchases nearest in date to July 1st, 1914, is a column of percentages that represents the percentage of increase in the 1916 price over the 1914 price, except where it is shown in red it represents a decrease; and under the recent quotations, there is also a per cent that represents increase or decrease over or under the 1914 prices. Both are against the 1914 prices, and as to the prices in the column headed "Almert's Prices," they were furnished by Mr. Almert to the witness, and he cannot testify as to the correctness of those prices by actual check.

This was introduced in evidence and marked "Crowell Exhibit No. I," comprising 5 pages.

The witness then introduced a second statement, which was marked "Crowell Exhibit No. 2" and which he explained as follows:

This statement shows the approximate increases in the prices of various classes of material as reflected by actual purchases of July, 1914, as compared with July, 1916, and also by recent quotations. They are stated by average percentage of increase of each class of property but not a weighted average. This is compiled from these other five sheets. For instance, the first item I have is "copper cable, paper insulation, lead covered." I give that a percentage of 90 to 95 per cent in July, 1916, over July, 1914. That is derived by taking the first seven items and taking the average of the increases—the average of percentages, and the same idea has been followed with each of the other classes.

1116 This statement is as follows:

EXHIBIT CROWELL No. 2.

Approximate Increases in Prices of Various Classes of Materials as Reflected by Actual Purchases Near July 1, 1914, and July 1, 1916, and by Quotations of About December 1, 1916.

	July, 1916, over July, 1914.	December, 1916, over July, 1914.	December, 1916, over July, 1916.
Copper cable, paper insulation, lead covered	90 to 95%	110 to 115%	10 to 15%
" " rubber " " "	10 " 15	110 " 115	85 " 90
" wire, weatherproof insulation	95 " 100	130 " 140	15 " 20
" " rubber insulation	45 " 50	100 " 110	40 " 45
Aluminum wire	.. ..	95 " ...	.. ..
Portland Cement	25 " 35	45 " 50	10 " 15
Steel bars	125 " 130	135 " 140	1 " 5
Vitrified clay conduit	.. ..	25 " 30	30 " 35
Steel wire, galvanized	45 " 50	55 " 60	5 " 10
Iron castings, manhole frames, etc	30 " 35	65 " 70	20 " 30
" " stoker castings, etc	70 " 75	70 " 75	.. ..
Boiler tubes, iron	.. ..	70 " 75	.. ..
Condenser tubes, brass	.. ..	135 " 140	.. ..
Transformers	.. " 0	15 " 20	15 " 20
Meters	.. " 0	10 " 15	10 " 15
Stationery	45 " 50	80 " 85	20 " 25
Miscellaneous	30 " 35	55 " 60	15 " 25
Approximate average increase	45 " 55	75 " 85	20 " 30

1117 The witness then produced and identified a statement compiled from three issues of the American Metal Market and Daily Iron and Sheet Report, which paper is recognized among the metal trades as being an authority.

The three dates that he has taken—July 1, 1914, July 1, 1916 and November 28, 1916. This table shows the percentage of increase or decrease as of the last two dates as compared with the first date.

Witness assumes responsibility for the accuracy of these figures as compared with the American Metal Market and Daily Iron and Steel Report which is the source. "I have carefully checked them back, and I am positive as to the accuracy of these figures" and the percentages are derived by him from those figures.

This was offered in evidence as "Crowell Exhibit No. 3."

1118 Certain corrections in Mr. Paine's testimony are indicated on pages 5539-5543.

1119 L. E. SINCLAIR.

A statement from Mr. L. E. Sinclair was accepted in lieu of his testimony.

"That he is now and has been for twenty years General Superintendent of the Potomac Electric Power Company; that as such general superintendent he has charge of the construction and operating departments of said company; that he has read the testimony of Wm. F. Ham, a witness in this case, relating to cost of superintendence, supervision and other similar expenses in connection with work performed by the construction departments of the Potomac Electric Power Company and referred to in greater detail by Mr. Ham in exhibits submitted by him numbered Ham—34 and 35; that from his knowledge of the construction and operating work of the Potomac Electric Power Company and from his familiarity with the expenditures that have been made for construction and operating work, as well as from the result of his experience generally, he believes that the figures contained in Ham Exhibit 34 are correctly stated and that the expense of superintendence and other similar overhead costs should be properly included in the cost of construction work done under the supervision of the construction departments during the year 1915 may fairly be considered the sum of $37,384.70; that the amount of construction work done under the supervision of the construction departments for said year was $287,148.58, as stated in the Plant accounts of the company; that the percentage of such superintendence to the cost of such construction work is 13%; that he believes this is a fair, reasonable and conservative percentage to be added to the cost of construction and equipment for this class of work for the year 1915 in order to ascertain the true cost of construction and equipment for said year, and that he further believes that it is fair, reasonable and conservative to add the same percentage to work of the same character done under the supervision of the construction departments during the period from September 30, 1896, to June 30, 1916, and shown by accounts on Ham

exhibit 35, in order to ascertain the true cost of construction and equipment during said period;

"Further, that he has read the testimony of said Wm. F. Ham relating to general administration expense and believes that it is fair, reasonable and conservative that an allowance of 5% for such administration expense be made on all construction and equipment from January 1st, 1900 to June 30th, 1916, in order to ascertain the true cost of construction and equipment during said period;

"Further, that he has read the testimony of said Wm. F. Ham as to betterments and improvements to the property of the Company not reflected in the Plant accounts of the Company and agrees substantially with the statements made by Mr. Ham to the effect that less substantial and less expensive types of construction have been replaced by more substantial and more expensive types of construction and the cost of such replacements charged to operating expenses, and that there has been a constant tendency toward improvements through renewals which has had a decided effect upon increasing the cost of existing property over and above the account recorded in the Plant accounts of the Company."

"Correct:"

(Signed) "L. E. SINCLAIR."

1120 Also two affidavits made by Mr. Almert were accepted in lieu of the personal appearance of Mr. Almert.

"Harold Almert, being first duly sworn, deposes and says that he is the same person who heretofore testified in the above entitled cause as to the estimated labor and material cost which would be required for the reproduction of the properties of the Potomac Electric Power Company in the District of Columbia, and as to other matters in the above entitled proceeding.

"Affiant further states that in the course of his testimony he was asked by the Chairman of the Commission for information as to any prices of labor and of materials, used by him in the computation of his estimated reproduction cost, which were less than the quoted prices on July 1st, 1916.

"Affiant further states that he has referred to the prices used by him in said computation and has made a comparison of the same with the quoted prices of July 1st, 1916, and hereto attaches and marks 'Exhibit A, Pages 1 to 5' inclusive of this affidavit, a tabulation, with an explanation thereof of the quoted prices and of the prices by this affiant on the various kinds of materials listed in said Exhibit A and on the labor costs listed in said Exhibit A.

"Affiant further states that the pages of said Exhibit A marked 'Exhibit A, Pages 3, 4, and 5' inclusive, contain certain explanatory notes showing the method which affiant used in arriving at certain of the figures appearing in the columns on Pages 1 and 2 entitled 'July 1st, 1916 Quotation.'

"Affiant further states that the labor and material costs appearing in said Exhibit A under the heading 'Price used by Harold Almert' are the actual labor and material prices used by him in the computa-

tion aforesaid; and that the labor and material costs appearing on said Exhibit under the heading 'July 1st, 1916 Quotation' are the quoted costs of said labor and material on July 1st, 1916, as the same have been ascertained by affiant by making diligent inquiry among manufacturers of and dealers in materials of the kinds specified in said Exhibit A, and through inquiry of officials of local trade unions and of employers of labor in the District of Columbia.

(Signed) "HAROLD ALMERT."

Subscribed and sworn to on the 28th day of December, A. D. 1916.

Affidavit No. 2.

"Harold Almert, being first duly sworn, deposes and says that he is the same person who heretofore testified in the above entitled cause as to the estimated labor and material cost which would be required for the reproduction of the properties of the Potomac Electric Power Company in the District of Columbia, and as to other matters in the above entitled proceeding; and that in the course of his testimony in the above, certain requests for information, explanatory of said testimony and of affiant's exhibits filed therewith, were made by the Chairman of said Commission; and that affiant is making this affidavit to supply certain information which was requested as follows:

1121 "1st. On page 4003, of the record of testimony in above entitled cause affiant was requested to supply the percentages which affiant used in computing the Miscellaneous Field Expense and Filed Supervision which affiant had included in his estimated labor and material cost.

"2nd. On page 4004 of the record of testimony in above entitled cause affiant was requested to supply the percentages which affiant used in computing the Waste and Breakage which affiant had included in his estimated labor and material cost.

"3rd. On page 4006 of the record of testimony in above entitled cause affiant was requested to supply the percentages which affiant used in computing the Stores Expense which affiant had included in his estimated labor and material cost.

"Affiant attaches hereto, marked 'Exhibit B,' pages 1 to 3 inclusive, a complete explanation of the percentages which affiant so used in his computation of such Miscellaneous Field Expense and Field Supervision, of such Waste and Breakage and of such Stores Expense; and affiant states that said 'Exhibit B' contains a true and correct explanation of the methods in which said items were computed by affiant in his estimated cost of reproduction.

(Signed) "HAROLD ALMERT."

Subscribed and sworn to on the 28th day of December, 1916.

Affidavit No. 3.

"Harold Almert, being first duly sworn, deposes and says that he is the same person who heretofore testified in the above entitled cause as to the estimated labor and material cost which would be required for the reproduction of the properties of the Potomac Electric Power Company in the District of Columbia, and as to other matters in the above entitled proceeding.

"Affiant further states that he has examined a transcript of the testimony rendered in the above entitled cause by F. B. H. Paine and the exhibit submitted with said testimony and has ascertained from said testimony and exhibit that said Paine based his computations partially on certain testimony therefore given and exhibits theretofore filed by affiant in the above entitled cause, and that he had misinterpreted affiant's testimony and exhibits in that he had assumed that certain parts thereof included only estimates of the actual cost of physical labor and materials actually used in construction, while, as a matter of fact, certain items in affiant's computations had included estimates of indirect labor and material costs such as store-room expense, miscellaneous filed expense, filed supervision and sub-contractor's expense and profit.

"Affiant further states that since examining the said transcript of testimony and exhibit of said Paine, affiant has made an analysis of the items of indirect cost included in his estimated reproductive cost, and an analysis of the amounts which would have resulted if said items of indirect cost had been excluded from affiant's testimony, and of the effect which said exclusion would have had on the portion of the testimony of said Paine which was based on affiant's computations; and affiant hereto attaches his said analysis with explanatory matter thereof and marks the respective pages of said analysis Exhibit C Pages 1 to 7 inclusive.

"Affiant further states that Exhibit C Page 1, is a recapitulation of the results of said computation of affiant and that by said
1122 exhibit it appears:

"1st. That affiant's estimate of the labor and material cost of reproduction of said property of the Potomac Electric Power Company in the District of Columbia excluding all items of indirect cost of the nature hereinbefore referred to is $11,223,080.00.

"2nd. That based upon the method of computation used by said witness, Paine, the indirect costs of reproduction of said property would have been $3,946,355.00."

"3rd. That based on said revised estimate by affiant of the cost of labor and material (excluding all indirect costs) and on the indirect costs as computed on the basis used by said witness, Paine, the total field cost of all the properties of said Potomac Electric Power Company in the District of Columbia would have been $15,169,435.00.

"4th. That the contractor's profit computed on the basis used by said witness, Paine, upon the revised field cost as above shown would have been $455,083, and that accordingly the estimated cost of the reproduction of the constructed property of said Company in the Dis-

trict of Columbia, computed in the method aforesaid, would have been $15,624,518.00.

"5th. That the financial indirect cost of the property of said company in the District of Columbia (based on the revised figures of the estimated cost of constructed property above shown in paragraph 4th and computed on the basis used by said witness, Paine), would have been $1,874,942.00, making a sub-total of $17,499,460.00.

"6th. That the cost of development of business, computed by the Alvord method used by affiant in his testimony and confirmed by said Paine in his testimony, was $2,220,000, which, when added to the above sub-total, gives an estimated gross reproduction cost of the property and business of said Potomac Electric Power Company in the District of Columbia of $19,719,460.00, exclusive of property rights in easements and of the Great Falls Power site.

"Affiant further states that said Exhibit C, Page 1, hereto attached is a true and correct computation by affiant of the way in which the Exhibit heretofore filed in the above entitled cause by said witness, Paine, would have read if the same had been computed upon the correct estimated labor and material cost above set forth, eliminating all items of indirect cost the inclusion of which in affiant's former testimony and exhibits was overlooked by said witness, Paine, as hereinbefore set forth.

(Signed) "HAROLD ALMERT."

Subscribed and sworn to on the 28th day of December, A. D. 1916.

1123 On January 26th, the Commission introduced certain letter dated January 25th showing quotations of the Potomac Electric Power Company 1st Consolidated Mortgage on July 1, 1912, 1913, 1915, and 1916. (See transcript pages 5558 to 5559, from which any needed extracts may be made.)

Certain extracts from the record in the case of Western Electric Company v. Potomac Electric Power Company, In Equity No. 1458?, may be found in the transcript, pages 5560-5581, inclusive, from which extracts may be made by either party.

Mr. HAM was thereupon called to the stand and stated that he had no knowledge as to what, if any, additions or extensions were made to the plant of the Potomac Electric Power Company referred to in this record.

Also on 5583 the Commission introduced into the record the report of a hearing before the Committee of the House on the District of Columbia in December, 1913, page 164 of the House Document, House Resolution, 14,896, 63rd Congress, Second Session, April 16, 1904, from which extracts are to be found in the transcript pages 5583, 4, 5, and in connection therewith Mr. Ham testified from books which were produced; that it appears on Ham Exhibit No. 23 that three loans had been obtained from the United States Trust Company—one for $75,000, one for $10,000 and one for $340,000, the first being in 1897 and the second and third in 1898.

1124 WM. P. RICHARDS was recalled as a witness on behalf of the Commission who produced a document which he stated is a compilation of data from the assessor's office showing taxes paid by the United States Electric Light Company on its real estate, conduits, overhead wires, poles and lamps for the years 1899, 1900 and 1901; and also of the taxes paid by the Potomac Electric Power Company for the same year on the same items; and also the taxable value of the real estate of the Potomac Electric Power Company on the same items for the years 1902 to 1916, inclusive, together with the amount of tax paid; which statements are attached to the evidence of that day and were admitted in evidence over the exception and objection of the counsel and marked for identification "Richard's Exhibit No. X. (See transcript page 5594)—and said

"In making up our assessments from year to year, we have asked the companies at various times to furnish us with information as to the cost of their wires, poles, conduits, and so forth, and I have here the original letters and also copies of those letters for the years 1900, 1901, 1902, 1905 and 1908,"

which were also offered and received in evidence. These letters were also introduced in the transcript as Richard's Exhibit No. XX. (See transcript page 5597.)

Mr. Syme: I want to state, for the record, that one purpose I have for offering these letters it to have them conside-d with reference to the statement by Mr. Ham on page 4613 of the record, in which he says:

"I have not attempted to state what amount should be included in the cost of construction and equipment for taxes and insurance during construction, for the reason that I do not know how it is possible now to ascertain even approximately what this amount is."

And I am endeavoring to put into the record any information we have as to what that statement would apply to, if it is applicable at all.

The witness having had his attention called to a letter addressed to Mr. Griffin, Chairman of the Board of Assistant Assessors, dated July 31, 1902, showing that the attention of the assessors is called to the fact that three ducts in each conduit were reserved for the free use of the General Government and of the District of Columbia and, therefore, not assessible, and continued—"This deduction would fix the value per mile of United States Electric Lighting conduit at $4,593.60 and of the Potomac Company conduit at $3,389.76," and that opposite that statement on the letter appears "Accepted by Board for assessment."

Mr. Bowen: What does that mean, if you know?

I think that deduction was accepted at that time, and that the actual assessment made was only of the conduits used by the company; in other words, that we did not assess the parts that were reserved for the use of the District of Columbia or the United States.

Mr. Bowen: With that in mind, the assessment that you purport to give in your statement this morning is not intended to be co-ex-

tensive with all the property or conduits owned by the company, nor do you intend it to be used as such?

Mr. Richards: Not in a case of this kind; certainly not.

1125 Mr. Richards also testified that his return of assessment of real estate includes only property standing in the name of the company of record, and does not purport to show any property owned by the company that does not stand of record in the name of the company; and that the real estate assessment included buildings and grounds. He has attempted to assess two-thirds of the value, and in determining the value of any building, these three factors will enter into it; first, cost; 2nd, depreciation and obsolescence, 3rd, and the consideration of obsolescence is a matter of judgment entirely; no factor on earth can determine it.

Witness has not reduced the assessment on buildings from year to year on account of depreciation of obsolescence, due in some case to the fact that the ground may have increased in price and the building decreased; hard to determine where to draw the line between the building and the ground. Carried the two at the same value.

1126 J. H. Botz, another witness was introduced on behalf of the Commission, who, being duly sworn, testified as follows:

The attention of the witness was then directed to certain testimony of Mr. Ham on page 4574 of the record and to Ham Exhibit 34, and was then question- by Mr. Symes.

Mr. Botz, in order to enable us to make some sort of a comparison with Mr. Ham's figures, I asked you to take his Exhibit No. 34, and, taking the year 1911 and examining the books of the company for exactly the same items that Mr. Ham used in this exhibit and following his method, make the same character of computation for that year and give me what per cent you arrived at, following the same items and the same method of computation, for the year 1911 instead of the year 1915, and taking that from the books of the company.

Mr. Botz: Yes sir; I did. I found that, following the same methods and taking the same accounts for the year 1911, the percentage figured out to be a little over 7½ per cent—about 7.57 per cent—as compared with 1915.

The items were taken from the books of the company and made as indicated.

His compilation was then offered and identified and introduced in evidence as Exhibit Botz No. X, and thereupon he was cross-examined by Mr. Ham as follows:

He believed they did something in the way of similar calculations for the years 1912 and 1913, too; but he has not made out any schedule in that form. He took one year where the construction seemed to be a little higher than the year 1915; in fact, it was a little higher than the average. The inevitable result of taking a year that was higher than the average would reduce the percentage. He would not say that he picked that year for that purpose,

that 13 per cent could not be applied to every year, and 1915 was not an average year to be applied back to 1896.

The percentage of 1912 was about 11 cents; the result for 1913 was under 13 per cent, but not very much.

Mr. Ham: Couldn't you introduce into the record, for the sake of fairness, the result of those two years that you completed in addition to 1911?

Mr. Botz: I haven't made the statements in that form for those two years.

Mr. Ham: How did you come to say just now that it came to about 11 per cent in 1912 if you had not completed your figures?

Mr. Botz: It came approximately to it. I had not checked it like I did this year 1911.

Whereupon, demand was made that the results for the years 1912 and 1913 also be introduced into the record.

Chairman Kutz: I would like to ask whether the company made computations for other years than 1915.

Mr. Ham: It did not; that 1915 was selected because it was the most recent year where we would be most familiar with all of the details of these accounts. As a matter of fact, going back as far as 1911, the system of accounting has changed, and any figures
1127 based upon 1911, following exactly the same construction that was followed in 1915, would not give you the same results because, during that period, items which were formerly included in direct operating accounts were later put into superintendence accounts where they belonged. Therefore, in going back to 1911, you have not determined correctly the basis that you are going to make for your charges because we had a different system of accounting.

Chairman Kutz: How about computations made for the years 1912 and 1913?

Mr. Ham: I think the latter years would approach more nearly our present system of accounting.

Both years, 1911 and 1915, were done I. C. C. classification of accounts which were uncha-ged, but as time went on it was found that certain items of superintendence which should be properly included in Account No. 38 were not being so included, and, therefore, we corrected the error as soon as it came to our attention—when it became most pronounced—probably about 1913.

That is better illustrated by reference to Ham Exhibit No. 33, page 5, item "Account 38, Distribution Superintendence," which reads, by years, as follows:

1910	$18,876
1911	21,661
1912	25,008
1913	27,979
1914	30,739
1915	32,445

The accounts of 1911 are not more nearly correct than those of 1915. The accounts of 1911 did not include in that superintendence account items that should have been included. They were absorbed in operating accounts and not included in this superintendence account at all. The increase in the expense of this Account 38 is not so much increased expense as it is that we have included in the account items that should be included in it and which were not included in it during the years 1910 and 1911. They were not charged to construction but to operation.

Chairman Kutz: We will complete and insert in the record the figures for 1912 and 1913 if we find it can be done without an undue amount of work.

Mr. Botz stated that Mr. Ham intimated that he was unfair to take this year. It was not done with that intention. It was just simply to show that there was a variation during the years. It is not recommending that 7 per cent should be substituted for 13 per cent, or anything like that, but just to show that there is a variation in years, and that it would be necessary to take more than one year in order to arrive at an average which would represent the charge which you took up in pour Exhibit No. 34.

That he would not know, without an analysis, whether that was just a gradual increase in operating expenses due to higher cost of labor and materials, or whether it was due to a revision of the accounts, or something like that; that he is not prepared to state whether, in his judgment, as an expert accountant, between 7 and 8 per cent is a proper percentage to be added to the cost of construction to cover these items of superintendence and similar overhead expenses.

That in making an allowance of that kind, it would be necessary to consider the company or the utility upon which the allowance is to be made; that is, on what construction it is to be made. He thinks it would have a great deal to do with the manner in which the construction accounts had been kept and the policy of the com-
1128 pany as to whether they were conservative in their charges or not.

He does not know whether the amount of construction work connected with the transmission and distribution system in the year 1911 was unusually high or above the average. The total construction for that year was higher than for some of the other years along about that time.

He does not know whether it was in the transmission system or what. That he rechecked the figures of the company for the year 1915, and found them substantially correct and the percentage for 1915 was correctly applied on the basis used and he is unable to state what is a fair allowance to be made for such overhead charges. "I would not care to state it now in this case."

And there was also inserted into the record a copy of the bill of complaint in the U. S. Circuit Court for the Eastern District of Virginia of the U. S. Mortgage & Trust Company, as well as the supplemental bill which was put into the record as an appendix.

Mr. Syme: If the Commission please, those are all the odds and ends I can think of that I want to put in before the case is closed so far as I am concerned.

Chairman Kutz: Does the company have anything it wants to put in?

Mr. Bowen: No, Mr. Chairman.

Thereupon the taking of evidence was completed.

The respondent company thereafter filed their brief and the case was submitted to the Commission January 31, 1917, after oral argument.

On May 2, 1917, the Commission rendered its opinion and findings incorporated in Order #208 as follows:

1129 Formal Case No. 47. Order No. 208.

Opinion and Findings of the Public Utilities Commission of the District of Columbia in the Matter of the Valuation of the Potomac Electric Power Co.

Commissioners:

Charles W. Kutz, Chairman;

Louis Brownlow, Oliver P. Newman.

Decided May 2, 1917.

Washington.

Government Printing Office.

1917.

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1131 *Table of Contents.*

Page.

Introduction 5
Valuation 6
The proceeding 6
Appearances 8
History of the company 9
Description of plant 12
Regulation by congressional enactment 12
Rates for private lighting and power 12
Rates for street lighting 13
Regulation regarding construction 14
Accounts and annual reports 14
Historical cost 14
Book value of plant and equipment 14
Cost of plant and equipment according to the books of the company 17
Land 21
Buildings 22
Steam-power equipment 22
Electric-power equipment 23
Turbo-generator equipment 23
Miscellaneous power-plant equipment 23
Poles and overhead lines 24
Underground conduits 26
Underground cable 26
Street and park lighting 27
Line transformers and devices 28
Electric services 29
Electric meters 29

Page.
Arc and incandescent lamps and signs 29
General equipment 30
General and miscellaneous expenditures 30
Miscellaneous 31
Deduction for equipment sold, scrapped, or abandoned, (undistributed) 31
Loss on equipment sold, scrapped, or abandoned, less amount charged to operations 31
Overhead charges 33
Construction in process 35
Original plants and franchises 35
Franchises, etc., of the United States Electric Lighting Co. 37
Preliminary and organization expenses 38
Discount on bonds 38
Materials and supplies and cash working capital 39
Investments 39
Reproduction cost 41
Report of commission's valuation bureau 41
Property not included 41
Cooperation 42
Basis and procedure 42
Inventory 42
Classifications and divisions 43
Land 43
Structures 43
Power-plant and substation equipment 44
Transmission and distribution 44
Street and park lighting system 45
General equipment 45

1132

Reproduction cost—Continued.
Report of commission's valuation bureau—Continued.
Cost of reproduction defined 45
Costs 46
Depreciation 47
Depreciation of emergency power plant 49
Depreciation of general costs 49
Annual annuity on 4 per cent sinking basis 49
Materials and supplies 50
Working capital 50
Conclusions 50
Adjustments by commission's engineer 54
Report of company's engineer 56
Comparison of commission and company engineering reports 57
Alleged errors and omissions 59
Land 60
Property not used or useful for electric operations 62

Page.
Property additions, July 1, 1914, to July 1, 1916.... 63
Comparison of general costs—overhead charges..... 64
Comparison of base costs..... 74
Final 5 per cent adjustment by commission..... 79
Materials and supplies..... 80
Cash working capital..... 81
Preliminary expenses prior to construction..... 81
Preliminary operation..... 82
Great Falls power site..... 83
Final adjusted reproduction cost of physical property. 85
Reproduction cost of property outside District of Columbia. 86
Paving..... 86
House services..... 87
Intangibles and cost of development..... 87
Compensation to conceivers..... 87
Brokerage and commissions..... 88
Property rights in easements..... 89
Development costs..... 90
Depreciation..... 92
Additions, July, 1914, to December 31, 1916..... 97
Fair value..... 97
Findings..... 103
Rates of depreciation..... 104

1133 Public Utilities Commission.

Order No. 208.

May 2, 1917.

Formal Case No. 47.

In the Matter of the Valuation of the POTOMAC ELECTRIC POWER CO.

Opinion and Findings.

By the COMMISSION:

In accordance with paragraphs 6, 7, and 8 of the act of Congress approved March 3, 1913 (37 Stat., 974), the Public Utilities Commission of the District of Columbia proceeded to value the property of the Potomac Electric Power Co. within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation.

Before proceeding to detail at length the method employed by the commission in making this valuation it is necessary to consider the character of the duties imposed upon the commission by the public utilities law in respect to the valuation of all public tuilities in the District of Columbia, among which the respondent company is included. Consideration must therefore be given to the purpose and

objects for which the law was enacted and in relation to which the valuation of the property of this company became necessary.

Paragraph 2 of the public utilities law provides:

That every public utility doing business within the District of Columbia is required to furnish service and facilities reasonably safe and adequate and in all respects just and reasonable. The charge made by any such public utility for any facility or services furnished, rendered, or to be furnished or rendered, shall be reasonable, just, and nondiscriminatory. Every unjust or unreasonable or discriminatory charge for such facility or service is prohibited and is hereby declared unlawful. Every public utility is hereby required to obey the lawful orders of the commission created by this section.

The keynote to the law itself is found in paragraph 2, and the key words of that paragraph are in the phrase "that every public utility doing business within the District of Columbia is required to furnish service and facilities reasonably safe and adequate, and in all respects just and reasonable, and that the charge made for the same shall be reasonable, just, and nondiscriminatory." This paragraph imposed upon the utility in direct terms, for the benefit of all the people, the common-law duty which it owes, as a calling impressed with a public interest, to furnish reasonable service at reasonable rates. Every line and paragraph of this law is in aid and assistance of paragraph 2. Every inquisitorial right and power given to the commission, every duty of disclosure of information imposed upon the public utilities, every safeguard directed to the keeping of accurate accounts and the adoption of proper standards, and every duty imposed
1134 upon the commission is to effectuate the right of the community to receive reasonable service at reasonable rates.

The justice or injustice of a rate can only be determined by an ascertainment of the just amount or base, fair alike to the utility and the public, upon which a return is to be allowed to the utility. Without the fixing of such a just amount it is impossible to determine whether a given rate or service is or is not reasonable.

Valuation.

The public utilities law, paragraphs 6, 7, and 8, provides:

Par. 6. That the commission shall ascertain, as soon and as nearly as practicable, the amount of money expended in the construction and equipment of every public utility, including the amount of money expended to procure any right of way; also the amount of money it would require to secure the right of way, reconstruct any roadbed, track, depots, cars, conduits, subways, poles, wires, switchboards, exchanges, offices, works, storage plants, power plants, machinery, and any other property or instrument not included in the foregoing enumeration used in or useful to the business of such public utility, and to replace all the physical properties belonging

to the public utility. It shall ascertain the outstanding stock, bonds, debentures, and indebtedness, and the amount, respectively, thereof, the date when issued, to whom issued, to whom sold, the price paid in cash, property, or labor therefor, what disposition was made of the proceeds, by whom the indebtedness is held, so far as ascertainable, the amount purporting to be due thereon, the floating indebtedness of the public utility, the credits due the public utility, other property on hand belonging to it, the judicial or other sales of said public utility, its property or franchises, and the amounts purporting to have been paid, and in what manner paid therefor, and the taxes paid thereon. The commission shall also ascertain in detail the gross and net income of the public utility from all sources, the amounts paid for salaries to officers and the wages paid to its employees, and the maximum hours of continuous service required of each class. Whenever the information required by this paragraph is obtained it shall be printed in the annual report of the commission. In making such investigation the commission may avail itself of any information in possession of any department of the Government of the United States or of the Commissioners of the District of Columbia.

Par. 7. That the commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation.

Par. 8. That before final determination of such value the commission shall, after notice of not less than thirty days to the public utility, hold a public hearing as to such valuation in the manner hereinafter provided for a hearing, which provisions, so far as applicable, shall apply to such hearing. The commission shall, within ten days after such valuation is determined, serve a statement thereof upon the public utility interested, and shall file a like statement with the District Committees in Congress.

By the provisions of paragraph 16 of the above-mentioned act of Congress, this commission is required to "ascertain and determine what are the proper and adequate rates of depreciation of the several classes of property of each public utility." This paragraph further recites that "each public utility shall conform its depreciation accounts to such rates so ascertained and determined by the commission."

The Proceeding.

Proceeding under authority of the act quoted above, this commission in April, 1914, organized a valuation bureau to assist it in the task of ascertaining "the amount of money expended in the construction and equipment of every public utility," which element of value will hereinafter be referred to as the "historical cost."
1135 and also the amount of money it would require "to replace all of the physical properties belonging to the public utility," which element of value will hereinafter be referred to as the "reproduction cost."

The commission engaged Dr. Edward W. Bemis, of Chicago, as director of this valuation bureau. The bureau was organized in two divisions under the general supervision of Dr. Bemis, the commission, however, retaining administrative control.

The accounting division, responsible for seeking information with respect to historical cost was under the immediate direction of Mr. Andrew Sangster, of Chicago, a certified public accountant, as chief accountant. Mr. Sangster made a report on the Potomac Electric Power Co., which was admitted in evidence; he testified before the commission and was cross-examined at length and in detail.

The engineering division of the valuation bureau was formed under the immediate direction of Mr. Charles L. Pillsbury, consulting engineer, of Minneapolis, as chief engineer, to ascertain as nearly as possible the cost of reproduction or the amount of money it would require to reconstruct the physical property of the respondent company and the amounts of depreciation.

As stated by Mr. Pillsbury, this engineering report "purports to set forth" with respect to the various parts of the physical property of the Potomac Electric Power Co. used and useful for electric operations within the District of Columbia, the following:

Detailed inventory.

Cost of reproduction.

Cost of reproduction less accrued depreciation.

Annual rates and amounts of depreciation.

The work of inventorying the property was begun on June 1, 1914, and was continued throughout 1914 and the first half of 1915. Care was taken, however, to exclude from the inventory all additions to property made subsequent to July 1, 1914.

Mr. Pillsbury's report on the Potomac Electric Power Co. was admitted in evidence in this case; he testified before the commission and was cross-examined at length and in detail.

Copies of the reports of the accounting and engineering divisions of the valuation bureau of the Public Utilities Commission, which had been compiled under the direction of the commission, were transmitted to the company on the 18th day of May, 1916, and the company was notified that on the 26th day of June, 1916, the commission would proceed to a valuation of its property in accordance with the law. On June 26, 1916, the hearings on the valuation were commenced.

The company objected to the consideration of the reports of the commission as a prima facie ascertainment by the commission of the matters and things covered by the reports and insisted that such a procedure cast an undue burden upon them. Whereupon the commission assumed the initiative and placed upon the witness stand the officials in charge of these bureaus and other witnesses who testified to the matters and things contained in the reports. On July 21, 1916, an adjournment was granted by the commission until September 15, when the chief accountant for the commission was subjected to thorough cross-examination by the officials and attorneys of the respondent company. The hearings were further adjourned from

September 22 to October 26, when the cross-examination of
1136 the commission's chief engineer was taken up. The company then examined Mr. Harold Almert, of Chicago, consulting engineer, submitting in evidence his report on the cost of reproduction, and placed other witnesses upon the stand who testified on behalf of the company, and who were subjected to cross-examination by the commission and its general counsel. The taking of testimony closed on January 26, 1917, and after two and one-half days devoted to argument by counsel for the respondent company, the case was submitted to the commission for decision on January 31, 1917.

The testimony consists of 6,221 pages of typewritten matter and over 50 exhibits.

Mr. Harold Almert's report on the cost of reproduction of the company's property, including all claimed intangible elements of value, consists of 1,234 pages of typewritten matter comprised in four volumes.

The respondent company submitted no report on the historical or recorded cost of its property, comparable to that of the commission's accounting division, but its comptroller in his testimony dwelt at length upon that subject and presented many exhibits of figures taken from the books of the company.

Under the above procedure, conceded by the commission, the company was given the benefit of long study, analysis, and comparison of the accounting and engineering reports of the commission's valuation bureau, prior to cross-examination of the commission's witnesses, while the commission had access to the cost of reproduction report of the company's experts only during the latter part of the hearings, and not until after the cross-examination of the commission's witnesses. It was not practicable, therefore, for counsel of the commission to cross-examine the company's valuation engineers and to dissect the company's cost of reproduction report as would have been done had the commission had access to the company's report corresponding to that which the company had of the commission's reports.

Appearances.

The commission was represented by its general counsel, Mr. Conrad H. Syme. The commission's witnesses were:

Dr. Edward W. Bemis, director of the valuation bureau.

Mr. Andrew Sangster, certified public accountant, in charge of the accounting division.

Mr. Charles L. Pillsbury, consulting engineer, in charge of the engineering division.

Mr. William P. Richards, assessor of the District of Columbia, testifying as to land values.

Mr. James H. Botz, statistician and accountant.

Mr. J. Kappeyne, engineer.

The respondent company was represented by Mr. Charles A. Douglas, Mr. S. R. Bowen, Mr. John S. Barbour, and Mr. J. J.

Darlington, of counsel. The witnesses for the respondent company were:

Mr. Harold Almert, consulting engineer of Chicago.

Mr. William F. Ham, comptroller of the respondent company.

Mr. R. W. Beall, real estate, Washington, D. C.

Mr. H. R. Dulaney, real estate, Washington, D. C.

Mr. Edward P. Edwards, assistant manager lighting department, General Electric Co., Schenectady, N. Y.

1137 Mr. Roscoe Seybold, commercial department, Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa.

Mr. Lewis Simon, dealer in metals, Washington, D. C.

Mr. James L. Marshall, builder and general contractor, Washington, D. C.

Mr. Samuel J. Prescott, builder and general contractor, Washington, D. C.

Mr. Ray Palmer, engineer, president of the New York & Queens Electric Light & Power Co.

Mr. Charles G. Young, consulting engineer, New York City.

Mr. Francis B. H. Paine, consulting engineer and counsellor in matters relating to public utilities, New York City.

Mr. Howard S. Graham, banker and dealer in investment securities, Philadelphia, Pa.

Mr. L. E. Sinclair, general superintendent of the respondent company, Washington, D. C.

Mr. Ralph W. Crowell, purchasing agent of the respondent company, Washington, D. C.

History of the Company.

The early history of the respondent company is concerned with a succession of small corporations operating in Georgetown, the last of which is the Potomac Electric Power Co., incorporated in 1896 and now operating throughout the District of Columbia. Until 1902 the greater portion of electricity used in the city of Washington was furnished by a separate corporation, the United States Electric Lighting Co. The property and franchises of this company were acquired by the Potomac Electric Power Co. at the last-mentioned date.

The company first to commence business in Georgetown was the Potomac Electric Co., incorporated under the laws of the District of Columbia April 18, 1891, with a capital stock of $25,000. Poles and wires were erected in the District, commencing at the Chain Bridge and extending into Georgetown. A receiver was appointed July 17, 1893, and the property subsequently sold to Amherst H. Wilder, of St. Paul, Minn., the sole stockholder and holder of the mortgage bonds, for $50,000. The conveyance of the property is dated October 11, 1894.

With Amherst H. Wilder and Victor M. Watkins, of St. Paul, Minn., and others as incorporators, the Potomac Light & Power Co. was organized under the laws of the District of Columbia November 3, 1894, with a capital stock of $35,000. At this time there was operating in the suburb of Eckington a small plant, known as the

Washington Electric Light Co. or the Eckington Electric Light Plant, owned by George Truesdell. The engine and dynamo were located in the station of the Eckington Railway Co. and supplied power for public and private lighting.

Under date of January 20, 1896, upon application of Oscar T. Crosby, D. S. Mackall, D. M. Anderson, B. F. Mackall, and L. E. Sinclair, the corporation court of Alexandria, Va., incorporated the Potomac Light & Power Co., the objects and purposes of which were the production, distribution, sale, and purchase of electric current and electrical appliances for all purposes.

1138 The capital stock of the said company was to be not less than $100,000, with the right and power to increase it to not more than $500,000. Messrs. Crosby and Lieb transferred all of the electrical franchises and property controlled by them to the said company in February, 1896, and received as the purchase price therefor 2,987 shares of the capital stock of the said company. The total capital stock issued was 3,000 shares.

Under date of April 28, 1896 (acts of incorporation, vol. 7, p. 268), the Potomac Electric Power Co. was incorporated under the laws of the District of Columbia by Oscar T. Crosby, Frederick C. Stevens, and Charles A. Lieb to manufacture, buy, sell, and distribute electricity and electric appliances for any and all purposes. The term of its existence was to be 20 years, and the amount of its capital stock was placed at $500,000.

In June, 1896, the Potomac Electric Power Co. purchased all of the assets of the Potomac Light & Power Co. for the sum of $255,000, which said assets included all of the property, rights, and franchises of the corporations formed under the laws of the District of Columbia and the State of Virginia.

The old station of the Potomac Light & Power Co. at the Virginia end of the Chain Bridge was abandoned and new dynamos installed in the station of the Georgetown and Tennallytown Railway Co. in which Crosby and Lieb had an interest. It was intended to introduce a new scheme for supplying power for operating railway companies in the District of Columbia. A number of contracts for this purpose were eventually secured, property was purchased at Thirty-third and K Streets, NW., and new machinery installed. The company was rapidly coming into competition with the United States Electric Lighting Co., having been awarded a contract by the Commissioners for the installation and maintenance of a number of arc lights for street lighting in the city of Washington about August 5, 1896. This required the issuance of permits for the laying of conduits, the legality of which was contested by the United States Co. but unsuccessfully.

The first attempt at the introduction of electric lighting in the city of Washington took place in the fall of 1881, in connection with the ceremonies attending the dedication of the Scott statute at Sixteenth Street and Massachusetts Avenue N. W.

This attempt was not a success, but as an immediate consequence of it the Heisler Electric Light Co. was formed by Messrs. Stilson

Hutchins, D .B. Ainger, Wm. Dixon, Moses Kelly, and George A. Kelly. It does not appear that this concern was ever incorporated in the District of Columbia, although it may have been incorporated elsewhere.

A small experimental station was established in the Washington Post Building, then located at Tenth and D Streets, NW., which supplied current to a small number of lights in the neighborhood of Tenth Street and Pennsylvania Avenue, NW., but this plant was in operation only a short while when all of the property rights and franchises of said company were purchased by the United States Electric Lighting Co., hereinafter referred to, for $100,000, payment being made in the capital stock of the said United States Electric Lighting Co., the bill of sale being dated December 9, 1882.

1139 The United States Electric Lighting Co. was organized under the laws of the State of West Virginia October 1, 1882, with a capital stock of $100,000, for the purpose of furnishing electric light and power to all persons applying and contracting for the same, including the United States Government. Operations were carried on in the District of Columbia largely in the city of Washington, and, in fact, until 1896 the company retained control of all the business done in the city—that is, east of Rock Creek. An effort had already been made by the Potomac Co. to obtain extensions of its lines within the city limits of Washington in certain streets not occupied by the United States Co. and a majority of the Senate Committee on the District of Columbia had reported favorably upon a bill (S. 3088) authorizing such extensions, but no action was taken by Congress. (54th Cong., 1st sess., S. Rept. No. 935, May 21, 1896.) Later, November 30, 1896, the Supreme Court of the District of Columbia decided that the commissioners had power to permit the laying of conduits for necessary extension of street lighting service, and that the power granted by Congress was not intended to confer any exclusive rights upon the United States Co. Finally, hearings were held in January, 1897, on a joint resolution (S. R. 187) which proposed that until definite action had been taken by Congress regarding the construction of conduits, permits might be issued for immediate extensions of existing service to the United States Co. in the territory lying east of Rock Creek, and to the Potomac Co. in the territory lying west of Rock Creek. The hearings were reported January 26, 1897, but no action appears to have been taken by Congress.

Competitive conditions were maintained only for a brief period, after which the records of both companies show similarities in methods, etc., indicative of concerted action. The minutes of the United States Co., indeed, state, under date May 5, 1899, that through the consolidation of the office and working forces of the two companies a number of changes had been made, also a considerable saving in operating expenses. The consolidation was effected as at September 30, 1902, when the United States Electric Lighting Co. sold its property, "including the good will of its business," subject to the outstanding mortgage and floating debt, for $3,250,000 common stock of the Potomac Electric Power Co.

The growth of the two principal companies is illustrated by the comparative statistics contained in the balance sheets submitted in the accountants' report. The capital stock of the Potomac Electric Power Co. amounts, as at July 1, 1914, to $6,000,000, of which $250,000 is preferred and $5,750,000 common stock. All of the stock is owned by the Washington Railway & Electric Co. The funded debt amounts to $6,729,000, consisting of $1,700,000 first-mortgage 5 per cent bonds and $5,029,000 consolidated mortgage 5 per cent bonds, no part of which is owned by the railway company according to its annual report for 1913.

The general officers and directors of the two corporations are the same persons. Moreover, the testimony in this case shows that for some time prior to the date of the consolidation of the Potomac Electric Power Co. and the United States Electric Lighting Co. on August 29, 1902, both companies were controlled by the same interests and had entirely lost their character as competing concerns.

1140 Description of Plant.

Briefly stated, the system of the respondent company consists of one main steam-turbo generating station, a number of substations connected thereto by high-tension underground feeders (except one on private premises connected by an overhead transmission line) and a comprehensive network of underground and overhead distribution lines. An idea of the extent of the underground system may be gathered from the fact that, with the exception of a few thousand feet of wire in alleys and two relatively short distances on streets, all the wires of the respondent company within the fire limits of the District of Columbia are underground. The area comprised within those limits is approximately 12.5 square miles, or one-fifth of the total land area of the District. Within this area the majority of the streets are covered with some form of improved pavement. Outside of the fire limits the larger portion of the company's lines are overhead.

The main generating station (power plant F) at Benning, has a capacity of 37,000 kilowatts, using 6,600-volt vertical Curtis turbo-generators. Power plant A, at Thirty-third and K Streets, has been dismantled as a generating station. Power plants B and D, at Fourteenth and B Streets, the main station of the former United States Electric Lighting Co., have a capacity of 3,000 kilowatts, at 220 volts, direct current; 1,000 kilowatts for series arc lighting; and 600 kilowatts for 2,300-volt alternating current.

The 220-volt direct-current units are reserve equipment for commercial light and power. The direct-current series arc machines are active equipment. These machines and the 2,300-volt generators are driven from a line shaft which is driven by two of the engines when the plant is in operation, but when in reserve the 2,300-volt generators are run as synchronous motors to run the line shaft and the engines disconnected by means of clutch pulleys. The 2,300-volt generating capacity is reserve.

For the fiscal year.	Rate. Per night.	Per annum.	Wires.	
1889	$0.50	.....	Overhead	Sunset to
1890	.40	.....	....do	....do
	.60	.....	Underground	....do
1891	.40	.....	Overhead	....do
	.60	.....	Underground	....do
1892	[1].40	.....	....do	....do
	.50	.....	....do	....do
1893	.50	.....	....do	....do
	[1].40	.....	....do	....do
1894	.50	.....	....do	....do
	[1].40	.....	....do	....do
1895	.40	.....	....do	....do
	[1].30	.....	....do	....do
1896	.40	.....	....do	....do
	[1].30	.....	....do	....do
	[1].20	.....	....do	45 minu minute
1897	.30	.....	....do	....do
	.28	.....	....do	....do
1898	.25	.....	....do	....do
	[1].20	.....	....do	....do
1899	.25	.....	....do	....do
	[1].20	.....	....do	....do
	.25	.....	....do	15 minu minute
1900	[2].20	.....	....do	....do
1901	.....	$72.00	....do	....do
1902	.....	72.00	....do	....do
1903	.....	72.00	....do	....do
1904	.....	80.00	....do	....do
1905	.....	85.00	....do	....do
1906	.....	85.00	....do	....do
1907	.....	85.00	....do	....do
1908	.....	85.00	....do	....do
1909	.....	85.00	....do	....do
1910	.....	85.00	....do	....do
1911	.....	85.00	....do	....do
	.....	[3]100.00	....do	....do

[1] Lamps in Executive Mansion Grounds.
[2] Lamps in certain United States parks.
[3] Special high candlepower arc lamps.

Rates for Arc Lamps for Street Lighting in the District of Columbia as Fixed by Acts of Congress.

For the fiscal year.	Rate.		Wires.	Hours of burning.		United States Statutes.	
	Per night.	Per annum.		From—	Number of hours per annum.	Volume.	Page.
1889	$0.50	.....	Overhead	Sunset to sunrise	4,307	25	320
1890	.40	.....	....do	....do	4,307	25	800
	.60	.....	Underground	....do	4,307	25	800
1891	.40	.....	Overhead	....do	4,307	26	300
	.60	.....	Underground	....do	4,307	26	300
1892	[1].40	.....	....do	....do	4,307	26	976
	.50	.....	....do	....do	4,307	26	1069
1893	.50	.....	....do	....do	4,307	27	157
	[1].40	.....	....do	....do	4,307	27	375
1894	.50	.....	....do	....do	4,307	27	544
	[1].40	.....	....do	....do	4,307	27	598
1895	.40	.....	....do	....do	4,307	28	252
	[1].30	.....	....do	....do	4,307	28	403
1896	.40	.....	....do	....do	4,307	28	751
	[1].30	.....	....do	....do	4,307	28	944
	[1].20	.....	....do	45 minutes after sunset to 45 minutes before sunrise.	3,760	29	440
1897	.30	.....	....do	....do	3,760	29	401
	.28	.....	....do	....do	3,760	29	440
1898	.25	.....	....do	....do	3,760	29	672
	[1].20	.....	....do	....do	3,760	29	41
1899	.25	.....	....do	....do	3,760	30	532
	[1].20	.....	....do	....do	3,760	30	628
1900	.25	.....	....do	15 minutes after sunset to 45 minutes before sunrise.	3,942	30	1052
	[2].20	.....	....do	....do	3,942	30	1104
1901	.....	$72.00	....do	....do	3,942	31	563
1902	.....	72.00	....do	....do	3,942	31	831
1903	.....	72.00	....do	....do	3,942	32	602
1904	.....	80.00	....do	....do	3,942	32	967
1905	.....	85.00	....do	....do	3,942	33	376
1906	.....	85.00	....do	....do	3,942	33	896
1907	.....	85.00	....do	....do	3,942	34	497
1908	.....	85.00	....do	....do	3,942	34	1134
1909	.....	85.00	....do	....do	3,942	35	288
1910	.....	85.00	....do	....do	3,942	35	703
1911	.....	85.00	....do	....do	3,942	36	391
		[3]100.00	....do	....do	3,942	36	391

[1] Lamps in Executive Mansion Grounds.
[2] Lamps in certain United States parks.
[3] Special high candlepower arc lamps.

There are eight substations in buildings owned by the company—five in buildings owned by the Washington Railway & Electric Co. (the holding company) and four on private premises.

Regulation by Congressional Enactment.

Rates for Private Lighting and Power.

It appears from the testimony (p. 4284 A) that the first successful use of electricity in the District of Columbia was made by the Heisler Electric Light Co., which shortly after it began operations sold its property rights to the United States Electric Lighting Co., in December, 1882. For 17 years the latter company furnished current to consumers other than the United States and District of Columbia Governments without any restriction as to rates. On March 3, 1899, Congress placed the first and only limit on such rates, establishing a maximum of 10 cents per kilowatt hour, with a penalty of 1 cent per kilowatt hour if bills are not paid within 10 days. (30 Stats., 1052.) This limitation is still in force.

1141

Rates for Street Lighting.

The first act of Congress fixing the price to be charged for electric lamps for street lighting purposes appears in the act making appropriations for expenses of the District of Columbia, approved July 8, 1888 (25 Stats., 320), although such public lights had been in use in the streets of the District for several years prior thereto. From time to time after that date until 1912 Congress modified the rates for such public lights, the various changes being shown in the following table:

(Here follows table marked page 1141½.)

Although incandescent electric lamps were used continuously for street lighting purposes beginning with the fiscal year 1896, Congress placed no limit upon the rates to be paid therefor until the passage of the acts of March 2, 1911 (36 Stats., 1008), and June 30, 1912 (37 Stats., 182), when the existing rates for all classes of street lighting were established.

1142 Regulation Regarding Construction.

The first legislation restricting the erection or extension of overhead electric light lines or referring to underground conduit construction for electrical purposes was contained in the act approved July 18, 1888 (25 Stats., 323), six years after the United States Electric Lighting Co. began its operations. The act forbade the erection of any additional overhead electric light wires, but permitted the construction of a limited amount of conduits for underground wires. These restrictions were modified from time to time until the passage of the acts approved March 3, 1899 (30 Stat., 1052), and July 1, 1902 (32 Stats., 602), authorizing, respectively, unlimited extension of conduits, and, outside of the fire limits, of overhead electric light wires.

Accounts and Annual Reports.

No reports of the company's operations, revenues, or financial condition were required until the act of March 1, 1901 (31 Stats., 831), which provided for the submission annually of a statement of its receipts and expenditures, supplemented the following year (32 Stats., 619) by requiring an annual statement of its gross earnings principally for purposes of taxation. More detailed information was required by the act approved March 2, 1907 (34 Stats., 1134). The last legislation pertaining to the company's accounts prior to the act creating this commission was the act of March 3, 1909 (35 Stats., 703), directing that they be kept in accordance with the methods prescribed by the Interstate Commerce Commission.

Historical Cost.

Book Value of Plant and Equipment.

The following table is taken from the accountant's report, Table A, and shows the financial position of the company as at July 1, 1914, the date of the valuation in this case:

TABLE 1.

Condensed Balance Sheet.

July 1, 1914.

Assets.

Plant and equipment	$11,529,173.67
Construction in process	1,586.38
Property abandoned	39,869.46
Investments	1,138,855.80
Materials and supplies	128,893.08
Bills receivable	69,555.44
Accounts receivable	264,796.99
Cash and deposits	264,275.89
Unamortized debt discount and expense	219,576.56
Prepaid insurance, etc	11,228.36
Sinking fund	442,934.89
Total	14,110,746.52

1143

Liabilities.

Capital stock	$6,000,000.00
Funded debt	6,729,000.00
Bills payable	.....
Accounts payable	189,712.10
Consumers' deposits	75,522.95
Accrued liabilities	10,771.46
Accrued amortization of capital, etc	410,105.66
Reserve invested in sinking fund	492,094.87
Reserve for damages	23,854.47
Suspense accounts	5,900.30
Surplus	173,784.71
Total	14,110,746.52

A preliminary survey of the plant and equipment account discloses items representing payments for property and franchises of earlier companies, expenditures for additions and improvements, and other charges in connection with financing at various times, as shown in the following summary:

TABLE 2.

Summary of Plant and Equipment Account.

Plant and franchises of Potomac Light & Power Co. (1896)	$501,055.31
Plant and franchises of United States Electric Lighting Co. (1902)	4,338,576.17
Additions and improvements to plant and equipment—net	6,500,718.63
Interest, etc., on bonds	132,500.00
Discount and commission on bonds	56,323.36
Total	11,529,173.67

Before proceeding to a discussion of the actual cost of the physical property of the company it is advisable to distinguish between expenditures on plant and equipment and payments for property of an intangible nature, or for organization and financing. It is found that each of the first three items in the foregoing summary are in this respect composite figures, and it will therefore be convenient to discuss these in their order.

In October, 1896, the property account was charged with the sum of $255,000, representing the cost of the plant and franchises of the Potomac Light & Power Co., which was settled for $50,000 in cash and $205,000 in four notes dated June 30, 1896. This payment is in addition to certain assets and liabilities taken over from that company as at September 30, 1896, including plant and equipment, at a book value of $14,304.13. The $255,000 evidently also covered some physical property, as a subsequent adjustment is recorded transferring the estimated cost of the property to specific plant accounts. The amount remaining would therefore appear to represent the book value of the Potomac Light & Power Co. franchises, $208,189.50. A proportion of the extraordinary expenses incident to the organization and financing of the company was distributed to the account under consideration, making the total $501,055.31, as shown in Table 2. It may be of interest to recapitulate the various items also referred to:

TABLE 3.

Potomac Light & Power Co. Franchises.

Notes dated June 30, 1896, due in 10, 20, 30, and 40 days	$205,000.00
Cash	50,000.00
	255,000.00

1144 Deduct:

Cable, Eckington dynamo, etc.	$29,000.00	
Junior mortgage on real estate, Thirty-third and K Streets, canceled by Crosby & Lieb	17,000.00	
Meters in service and in stock	810.50	
		$46,810.50
Total franchises		208,189.50
Proportion of extraordinary and legal expenses allocated to original plant and franchises		292,865.81
Total		501,055.31

On September 30, 1902, the company purchased the property and assets of the United States Electric Lighting Co., subject to the mortgage and floating debt, for $3,250,000, payable in common stock. The financial position of that company as at the date of purchase is reflected in the following summary:

TABLE 4.

United States Electric Lighting Co., Sept. 30, 1902.

Assets.

Plant and equipment	$2,081,959.75
Material and supplies	45,189.41
Bills receivable	54,467.85
Accounts and miscellaneous receivables	79,774.77
Cash	296,368.48
Total	2,557,760.26

Liabilities.

Capital stock	1,097,600.00
Surplus	175,249.37
Funded debt	650,000.00
Bills payable	572,618.12
Accounts payable	62,292.77
Total	2,557,760.26

At the time of the transfer the capital stock of the United States Co. was owned by the Washington Railway & Electric Co. Some time later it was found that a sum of $279,465.79, which apparently was deposited with the Commercial Trust Co. of New Jersey, in reality had been distributed among the stockholders of the United States Co. as a dividend on August 29, 1902. This transaction arose

from the fact that the whole of the construction expenditures for the year 1901, amounting to about the sum in question, had been charged to surplus and "was due to the fund belonging to the stockholders from the construction account." In order to repay that amount the company gave its note to the Commercial Trust Co. of New Jersey and distributed the proceeds.

To adjust the position as shown in Table 4 the plant and equipment account should be increased by $279,465.79 and the current assets diminished by the same amount. Thus, in exchange for its capital stock of $1,097,600 and surplus of $175,249.37—that is, for its net assets of an aggregate book value of $1,272,849.37—the United States Electric Lighting Co. received $3,250,000 in stock of the Potomac Electric Power Co. There was accordingly paid
1145 a premium of $1,977,150.63, which was capitalized in the accounts of the Potomac Co. by stating the cost of the plant and franchises acquired as $4,059,110.38 and later augmenting this amount by $279,465.79 on ascertaining the circumstances affecting the diminution in current assets of the business taken over. This result may be stated as follows:

TABLE 5.

United States Electric Lighting Co. Plant and Franchises.

Cost of plant and equipment as per United States Electric Lighting Co. balance sheet	$2,081,959.75
Add: Construction expenditures for year 1901 charged by United States Co. to surplus account	279,465.79
Total plant and equipment	2,361,425.54
Cost of plant and franchises as per Potomac Electric Electric Power Co. books	4,338,576.17
Increase in book value	1,977,150.63

The third item in Table 2 represents net additions and improvements amounting to $6,500,718.63. As this total includes several kinds of expenditures which should be separated from the cost of the physical property, it will be convenient at this stage to combine this book cost of the Potomac Electric Power Co. with the corresponding figure for the United States Electric Lighting Co. as found in Table 5 and proceed to adjust the same with a view to determining the actual cost as nearly as practicable.

Cost of Plant and Equipment, According to the Books of the Company.

From what has been stated in the foregoing discussion it will be observed that the total cost of the physical property owned by the present company as at July 1, 1914, is contained in the second and third items of the summary of plant and equipment, Table 2.

Further, it was shown that the purchase of the United States Electric Lighting Co. property might be separated into two elements, of which one is the cost of the property according to the books of that company amounting to $2,361,425.54 (see Table 5). Combining this figure with the net additions and improvements of the Potomac Electric Power Co., $6,500,718.63 (Table 2), there is obtained a total of $8,862,144.17 as the cost according to the books of the two companies, disregarding any increase in book value on the transfer of property from one to the other company.

For the purpose of affording a preliminary analysis of the cost as above stated, the following table is submitted showing the principal items comprised in the cost:

1146 TABLE 6.

Summary of Net Expenditures as per Books.

	Total.	Potomac Electric Power Co.	United States Electric Lighting Co.
Property account	$481,261.36	.....	$481,261.36
Land	486,719.47	$380,360.62	106,358.85
Buildings	594,939.69	405,524.64	189,415.05
Steam plant	1,389,019.12	1,211,838.84	177,180.28
Electric plant	1,480,005.34	1,279,364.63	200,640.71
Special and turbine construction	656,970.72	353,501.87	303,468.85
Miscellaneous power-plant equipment	28,554.80	22,407.09	6,147.71
Underground conduits	1,283,419.09	829,942.02	453,477.07
Poles and overhead lines	271,630.74	257,737.38	13,893.36
Cable	1,583,986.71	1,254,163.94	329,822.77
Street and park lighting system	104,845.06	97,517.80	7,327.26
Line transformers and devices	122,660.33	108,724.64	13,935.69
Electric services	375,238.37	361,344.23	13,894.14
Electric meters	262,843.63	233,556.27	29,287.36
Lamps, signs, etc	42,084.69	27,160.60	14,924.09
General equipment	68,452.83	64,790.30	3,662.53
General and miscellaneous expenditures	48,889.37	4,629.81	53,519.18
Engineering and superintendence	95,060.98	72,409.23	22,651.75
Equipment, etc., sold, scrapped, or abandoned	514,438.13	454,995.66	59,442.47
Total	8,862,144.17	6,500,718.63	2,361,425.54

It should be noted that the records of the company do not actually show such a classification as above. In attempting to compile a statement showing the additions to the property each year over such a long period as that now under review and at the same time classify these expenditures in order to determine their nature and relative importance only a very general method is available. The commission's accountants compiled Table 6 (shown as Table F in the accounting report) from certain statements submitted as Exhibits D and E in the accounting report and as there explained.

On reviewing the constituent charges to the different accounts over the whole period it was found, as was to be expected, that the distribution of expenditures was lacking somewhat in uniformity,

so that a considerable amount of adjustment had to be made before presenting the results in final form.

These adjustments do not, of course, affect at all the final total of the cost of the property, and for this reason need not be further discussed. There is, however, another series of adjustments to be made by reason of certain losses arising from the sale or abandonment of property. In addition to these considerations some further modification must be made in respect to certain expenditures not directly connected with the cost of the physical property, such as expenses of organization, special services, etc.

It might have been desirable to have distributed the expenditures according to the Interstate Commerce Commission classification of accounts, so as to make them more readily comparable with the reproduction cost as ascertained by the engineering division of the valuation bureau, but, as the accounts of the company have been kept according to that classification only since January 1, 1910, such a method was impracticable.

Giving effect to the several classes of adjustments above referred to, the commission's accountants made the following analysis (Table 7) of the amount, $11,529,173.67, shown in Table 2 as the total of plant and equipment account.

1147 This analysis (Table 7) appeared as Table I on pages 14 and 15 of the accounting report.

TABLE 7.

Final Analysis of Plant and Equipment Account by Commission's Accountants.

Expenditures on plant and equipment now owned:	
Cost of plant and equipment excluding general overhead charges	$7,649,576.81
Cost of moving or changing apparatus	32,076.67
Engineering and superintendence	95,637.40
Interest	399.45
Executive salaries, special services, etc	91,965.21
Total expenditures on plant and equipment	7,869,655.54
Loss on equipment sold, scrapped, or abandoned, less amount charged to operations	388,953.85
Property, rights, franchises, etc., of United States Electric Lighting Co., of New York (1882)	200,000.00
Franchises, etc., of Potomac Light & Power Co. (1896)	208,189.50
Franchises, etc., of United States Electric Lighting Co. (1902)	1,977,150.63

Organization, etc., expenses of Potomac Electric Power Co. (1897-1899)—		
Services obtaining loan from United States Mortgage & Trust Co., and securing contract for power for Eckington & Soldiers' Home Railway, paid in capital stock	$550,000.00	
Discount and commission on issue of $650,000 bonds	109,750.00	
Interest and discount on notes, etc	14,543.63	
Legal expenses	8,492.90	
Installation expense	90,923.54	
Total organization, etc., expenses	773,710.07	
Less: Installation expense included in plant and equipment	90,923.54	
		682,786.53
Settlement of interest on $650,000, 5 per cent bonds, Washington Railway & Electric Co. (1903)		132,500.00
Discount on $280,000, 4½ per cent bonds, Washington Railway & Electric Co. (1903)		56,328.56
Services and expenses in connection with consolidated mortgage, contract for power supply, etc. (1903-1906):		
Engraving bonds	$8,500.00	
Audit of accounts, Jan. 1, 1901, to Apr. 30, 1904	1,123.85	
Legal expenses	1,027.56	
		10,651.41
Sundry interest charged to cable account (1899)		2,962.65
Total (see Table 2)		11,529,173.67

A further analysis of "expenditures on plant and equipment" is given on page 13 of the accounting report, showing the distribution between various classes of property of the total "expenditures on plant and equipment," amounting to $7,869,655.54, as shown in Table 7. This analysis is repeated here as Table 8:

TABLE 8.

Summary of Plant and Equipment as Adjusted.

Land	$353,361.16
Buildings	773,278.88
Steam power equipment	735,238.28
Electric power equipment	1,146,717.00
1148	
Turbo generator	770,290.03
Miscellaneous power-plant equipment	37,448.45
Poles and overhead lines	257,466.68
Underground conduit	1,223,986.61
Underground cable	1,428,976.47
Street and park lighting	76,002.08
Line transformers and devices	133,435.17
Electric services	387,434.10
Electric meters	292,248.17
Arc and incandescent	50,367.23
General equipment	59,932.28
General and miscellaneous expenditures	157,807.71
	7,883,990.30
Deduct for equipment sold, scrapped, and abandoned (undistributed)	14,334.76
Total	7,869,655.54

While the company did not submit a detailed report as to the cost of its properties, certain data and testimony prepared by Mr. W. F. Ham, vice president and comptroller of the company, were placed in evidence. So far as the plant account proper is concerned, these consist principally of exhibits that show only the additions to plant account each year, and not an analysis that would tend to prove that the results obtained by the commission's accountants were erroneous. No comparison could be made between the two sets of figures, as to the correctness of any particular class of plant or equipment, but the evidence and testimony given during the hearings when particular items were discussed have been studied and compared.

Ham Exhibit No. 27 shows the total cost of plant and equipment to be $12,134,347.01, as at June 30, 1916. As this date is two years later than that of the commission's report, it is necessary to deduct therefrom the additions to the plant account for the intervening period, which amount to $605,173.34. This leaves an amount of $11,529,173.67 and agrees with the commission's figure, as previously stated and as set forth in foregoing Tables 2 and 7.

The amount of $12,134,347.01, shown above, however, does not represent the total figure presented by the company as constituting

the cost of construction and equipment. Certain investments not carried as plant and equipment, amounting to $1,118,855.80, were added, as were also certain other book accounts for unamortized debt, discount, and expense, work in progress, etc., amounting to $217,641.17. The operating-expense accounts were analyzed by the company for the year 1915 and a percentage thereof was taken as being properly chargeable to construction in respect to general administration and construction superintendence. This percentage was applied by the company to certain construction accounts from 1896 to 1916, and the total charges thus added to cost of construction and equipment amount to $846,821.01. In addition to the above items, an allowance of $253,052.75 was included for interest during construction, and an amount of $36,321.90 for miscellaneous items. Summarizing the various accounts included by the company as proper construction charges, the following result is obtained:

1149 TABLE 9.

Summary of Cost of Property, Submitted by the Potomac Electric Power Co.

Fixed capital, plant, and equipment Dec. 31, 1909, devoted to operations		$9,355,619.28
Expenditures for plant and equipment since Dec. 31, 1909		2,778,727.73
Property abandoned		7,046.46
Envestments—540 shares Electrical Testing Laboratories stock	$2,700.00	
Two-thirds interest in Great Falls water-power site	1,000,000.00	
Graceland Cemetery property	116,155.80	
Total investments		1,118,855.80
Unamortized debt, discount, and expense		201,174.42
Other expense, job work (work in progress)		9,420.29
Construction superintendence		524,807.69
General Administration		322,013.32
Interest during construction		253,052.75
Cost of Potomac Light & Power Co.	$278,134.32	
Less amount included in plant account of the Potomac Electric Power Co.	270,301.09	
		7,833.23
Difference between cost of I Street property and proceeds when sold		28,488.67
Total		14,607,039.64

The details appear in the testimony on pages 4626 and 4627.

Other items, such as taxes and insurance during construction and certain renewals charged to operations, were mentioned as being

properly chargeable to cost of property, but no attempt was made by the company to place a value upon them.

As previously stated it was impossible to make a comparison of the figures submitted by the company with the report of the commission's accountant, as representing the cost of any specific class of property. In its consideration of the data that were submitted, the commission carefully reviewed the record and made comparisons where possible. It has endeavored to take each class of property as presented in the accountant's report and to show how, and to what extent, it has been affected by the testimony given during the hearing, and further to show what modifications, if any, in its opinion, should be made in either of the two final figures submitted.

With this result in view, the cost of the various classes of property set forth in Table 8 have been considered by the commission in connection with other elements of cost and a final summary, Table 11, derived. Discussion of these various classes of property follows:

Land.

The cost of all land owned by the company, excluding investments, is shown to be $353,361.16. In the accounting report this is subdivided as follows:

Land used or partly used in electric operations....	$331,956.31
Land not used in electric operations	21,404.85
Total	353,361.16

The company did not submit any evidence to show that land had been omitted. In the cross-examination of Mr. Sangster, 1150 however, attention was drawn to the fact that lot No. 100, square 518, did not appear to be included in the report. (Testimony, pp. 1280 and 1281.) This was investigated and it was found that, due to a renumbering of the lots in this square, one of the new lot numbers had been omitted, but neither the cost nor the area was affected thereby. (Testimony, pp. 1587 to 1589.)

The property included in accountants' report under the general heading "Land not used for electric operations," comprised one triangular parcel of land described as square 709. It was purchased in 1908 at a cost of $21,404.85, and is located at Florida Avenue, First Street, and New York Avenue N. E. It is not used by the company at the present time, nor does it appear ever to have been used by them. The tracks of the City & Suburban Railway Co. run through the property, and other improvements consist of a small shack and a two-story brick building, the building being used as the office of a transfer company. This item is set up separately in the final summary, Table 11.

Other land owned by the company and carried on the books as investments is treated as such in another section of this opinion.

Deducting the interest charge of $399.45, allowance for which has been made in Table 11 under the head of "Interest during construc-

tion," and the amount $21,404.85, above, the total amount for used and useful land is found to be $331,556.86, as set forth in Table 11.

Buildings.

The cost of all buildings owned by the company, whether wholly or but partially used, is shown to be $773,278.88.

As with land, the company made no attempt to prove that the results as shown were incorrect, nor did it submit any evidence that would require reconsideration of the cost of buildings. While it is a well-known fact that certain of the buildings included in the above amount are in a more or less dilapidated condition, and in some instances practically of no value to the utility, the commission has not attempted to make any division of the investment, but, rather, has been inclined to accord the company a broad and liberal treatment of such items. It is necessary to deduct $95,060.90 for engineering and superintendence included in the above amount, $773,278.88, and which the commission has set forth in final summary Table 11, under that head, thus leaving a net total for buildings of $678,217.98, as shown in Table 11.

Steam Power Equipment.

The cost of steam equipment at June 30, 1914, is shown to be $735,238.28.

Items aggregating $201,742.60 were eliminated by commission's accountants from the book figures as representing equipment sold, scrapped, and abandoned, and not now in existence. The details of this amount were requested by the company and furnished to them, showing cost, year of purchase, and the book account in which the original charge could be found.

In the cross-examination of the commission's accountant (testimony, pp. 1440 to 1456) considerable discussion was had as
1151 to the propriety of eliminating a certain coal hoist located at Thirty-third and K Streets N. W. Some doubt still exists as to whether this hoist is actually nonexistent. Inasmuch as similar apparatus appears in the engineer's report on the reproduction cost, and in view of the testimony given in regard thereto, it would seem that this item, which amounts to $2,681.28, should be restored. With the exception of this coal hoist, no contradictory evidence was given in regard to the general steam-plant eliminations, and it is assumed that the balance of the items were properly treated.

The amount given as the cost of existing steam-power equipment as at June 30, 1914, must then be increased by the cost of the coal hoist restored to property account as above, giving an adjusted total of $737,919.56, as shown in Table 11.

Electric-Power Equipment.

The cost of electric-power equipment is shown to be $1,146,717.

In the preliminary preparation of this section of the accounting

report a complete inventory of the company was obtained and made available for study and reference. It is believed that this amount of $1,146,717 is substantially correct.

In arriving at this figure, certain eliminations were made in the accounting report, as in the case of steam-power equipment. There is but one item that appears to have been eliminated in error, and this was a booster set, which originally cost $5,050. Upon investigation it was found that the elimination of this item was an unintentional error, and its restoration to the plant account is necessary. (Testimony, p. 1362.) In the absence of any supporting evidence to the contrary, it is assumed that the balance of the eliminated items have been properly treated.

After adding the cost of this booster set to the total given above, the adjusted cost is found to amount to $1,151,767, as shown in Table 11.

Turbo-Generator Equipment.

The total cost of this class of equipment to June 30, 1914, is shown to be $770,290.03.

This figure was not questioned. The only elimination of property in this section is for an item of $98.96, which represents miscellaneous expenditures on a turbine foundation that was never used, and its elimination was justified. All other equipment of this nature is included in the above total of $770,290.03.

Miscellaneous Power-plant Equipment.

The total cost of miscellaneous power-plant equipment is shown to be $37,448.45.

In arriving at this figure certain eliminations were made, amounting to $4,472.81 and composed of equipment charged to the plant account between 1883 and 1901, and which it is believed has since gone out of existence. Evidence was introduced by the company (testimony, pp. 1462 to 1468) tending to show that a tube cleaner costing $505.83 had been included among the eliminated items in error. The company contended that this cleaner was a tool and not a part of the boilers that had been displaced and in which con-
1152 nection it had been used. Although some doubt still exists in the opinion of the commission as to the existence of this cleaner, it is proposed to restore its cost, viz, $505.83, to the plant account. This makes an adjusted total cost of $37,954.28 as at June 20, 1914.

Poles and Overhead Lines.

The company, through its witness W. F. Ham, made certain claims with respect to the amounts set forth in the accountant's report for poles and overhead lines, underground conduit and underground cables, respectively, claiming that the book figures were incomplete due to certain new construction and betterments having been charged to operations rather than to plant account.

Owing to the nature of the construction, which in the course of a year covers many small extensions, it is found very difficult to follow and identify any specific property through the period of its life and usefulness. While the total cost may be easily ascertained from the accounts of the company, it is more or less impossible to definitely say at any given time when or to what extent the individual items included in this cost may have been renewed or replaced. Repairs and renewals are constantly being made by the company, and this renders identification even more difficult. Generally speaking, however, these repairs and renewals, which for the greater part are recorded only in operating expenses, must not be taken as affecting in any way the actual investment shown by the plant account. There may be instances where a renewal has been made at a cost exceeding the original installation, due to increased cost of labor or materials and not to a better class of construction. In such cases the fluctuations in prices over a period of years would, no doubt, produce an average that would approximately represent a normal condition.

There may be other instances where a renewal or replacement has been of a superior type of construction or even that the existing property may have been enlarged, and no entries made in the books that would increase the investment. If such instances are actual conditions, the company is entitled to a larger amount for this particular class of property than is shown in the plant account.

It is inconceivable, however, that any company, no matter how conservative a policy it may pursue in regard to the charges it includes as additions to plant, would allow many items of this nature to be charged wholly to operating expenses. As a general rule, accounting of this nature has only one object, and that is the concealing of legitimate construction charges in operating expenses thereby reducing the earnings of the company.

The possibility of such a condition existing with the utility under consideration is not entertained, and it is not the intention of the commission to convey this impression. It is only endeavoring to state what may be expected in considering this question and what weight, in its opinion, should be given to any claim for additional cost.

The contention of the company is that the property has been gradually bettered by improvements charged partially, and in some cases entirely, to operating expenses. In support of this claim, Ham Exhibit No. 38 was introduced, purporting to show certain job work of the company covering improvements, etc., which had been
1153 only partially charged to plant account. Also by Ham Exhibit No. 39 claim was made for an allowance on account of renewals that had been charged entirely to operating expenses. Both of these exhibits are discussed at great length in the direct examination of the company's accountant. (Testimony, pp. 4627 to 4659.) No estimate as to the money value of the property included in these two exhibits was given by the company's witnesses, nor did they indicate to what extent the commission should make allowance therefor.

In Table 8 the cost of poles and overhead lines is shown to be $257,466.68.

In the accountant's report an item of $47,505.20 is shown as eliminated and represents the difference between original cost and amount subsequently eliminated from accounts in respect to property dismantled, sold, and scrapped. An analysis of this amount shows that it is composed of charges for poles, lines, etc., recorded in the books of the United States Electric Lighting Co. between the years 1883 and 1898.

By reference to the cross-examination of the commission's accountant (testimony, pp. 1591 to 1602), it will be observed that this class of property was made the subject of considerable discussion. As the details of the total elimination comprising nearly 14 pages of small items had been furnished the company, it was possible for them to take any individual items upon which to cross-examine. It developed that some of these, although small in amount, had been transferred to and were included in this section in error. The efforts of the company, however, in this respect, were not being expended in an endeavor to show what should be restored to the plant account in actual money, but rather in criticizing the principles involved. The commission has endeavored at all times to give due weight to any evidence tending to show what errors were made in the transferring of property items. As previously stated, the various classes of property comprising the general distribution and transmission system must, on account of the construction processes involved, be treated more liberally than other property.

In determining the cost of poles and overhead lines it is, in the opinion of the commission, necessary seriously to consider the advisability of restoring the amount of $47,505.20 heretofore mentioned as eliminated, as considerable doubt and uncertainty exists as to the possibility of determining absolutely the status of the old property included in this elimination.

In order to arrive at what may be considered a fair total cost of poles and overhead lines it is proposed to restore to plant account the total of this elimination, amounting to $47,505.20. It must be borne in mind, however, that this is not an admission on the part of the commission as to the incorrectness of the elimination or any part of it, but rather is in lieu of either of the conditions heretofore discussed that may possibly exist, viz:

1. The items, if any, included in error in the total amount eliminated.

2. Renewals or betterments of this class of property charged directly to operating expenses and no change made in the plant account.

This makes a total of $304,971.88, as per Table 11.

1154 Underground Conduits.

The total cost of this property is shown to be $1,223,986.61. There is no elimination for abandoned property other than an

amount of $7,097.71, which had been deducted by the company itself for specific property no longer in service.

The comments as to costs not fully recorded on the books in the preceding section dealing with poles and overhead lines apply also to underground conduits.

While it is believed that certain of the conduits shown as existing at June 30, 1914, are not now used or useful, it is impossible to ascertain to what extent this may be true. The final figure shown in the report and stated above includes all of the conduit ever laid by either company. Approximately $320,000 of this amount represents conduit laid prior to 1895, and some of these have without a doubt been either abandoned or lost sight of. Instances have been given, although not subject to strict proof, where the location of a conduit has been lost and that in other cases small conduits have been abandoned and left in the ground, due to the substitution of larger conduits laid in different locations, it being cheaper to leave it in the ground than to remove it. If this has ever been done, it is not reflected by the plant account.

While it is realized that these statements lack actual proof, it is thought that they are of value in considering the equity of the amount as stated in the report and Table 8. The general claim of the company as to its conservative policy in recording additions to this class of property in its charges to plant account may, in a sense, be true. It is not believed, however, nor has sufficient evidence been introduced to show that operating expenses are burdened to any extent with items that are properly chargeable to capital.

It is not believed that any modifications should be made in the amount stated in Table 8. If it is true that in some cases operations were charged with betterments that might safely and permissibly be charged to plant, as discussed under poles and overhead lines, it is felt that this would be more than offset by conduits that are no longer used or useful, the costs of which are nevertheless included.

Therefore, the amount $1,223,986.61 is carried forward to Table 11 unchanged.

Underground Cable.

The cost of underground cable is shown to be $1,428,976.47.

The comments as to costs not fully recorded on the books of the company, as set forth under "poles and overhead lines," apply also to this account.

Without repeating the general procedure followed in restoring the elimination of overhead lines and poles, it is proposed to restore in like manner the figure of $24,618.35, shown on page 188 of the accountants' report as eliminated. The restoration of this figure is not to be considered as an admission of its incorrectness, but rather that it be considered in lieu of any betterments to the original property through operations which were properly chargeable to plant. As previously stated, the fact that betterments of this nature have been charged to operating expenses has never been fully es-
1155 tablished, and it is not being considered at this time as having any direct effect on the final result.

It is also proposed to restore to cable account an amount of $20,101.04, which represents the balance of the reconstruction account amounting to $47,494.72, charged to profit and loss by the company in 1900. In the accounting report $27,393.68 was transferred to plant account and included with the section underground conduits. It was impossible to ascertain from the books what the balance of $20,101.04 really represented, as the records were not available. It apparently includes cable which was pulled into the conduits laid during this reconstruction period. There is no doubt but that it represents new construction, and its restoration to the plant account is believed to be justified.

Adding the two items restored to plant account as above, namely, $24,618.35 and $20,101.04, a total of $1,473,695.86 is obtained and represents the adjusted cost as per Table 11.

Street and Park Lighting.

The cost of street and park lighting system is shown to be $76,002.08. It is stated in the accounting report that property costing $19,200.58 has been eliminated, as being the "difference between original cost and amount subsequently eliminated from accounts in respect of equipment sold, scrapped, and abandoned."

In considering the cost of this class of property it is necessary to carefully review the transcript containing the cross-examination of Mr. Sangster (testimony, pp. 1284 to 1359). This section was made the subject of a lengthy cross-examination, which was obviously due to the apparently small investment shown as representing the cost of the street and park lighting system.

There are two sections shown in the accountant's report that contain poles, viz, poles and overhead lines previously discussed and the present section, street and park lighting. These two sections should be considered together in arriving at the total number of poles shown in the report, as the books of the company do not always definitely state the purpose for which a pole was used, although it is believed that the expenditures have all been recorded. For this reason it was difficult to place a pole in any particular account.

The company attempted to prove that the number of poles shown in the section street and park lighting were not in accordance with present inventories, and for that reason the cost given was incomplete. This may be true to a certain extent, but the subsequent testimony given by Mr. Ham in his direct examination (testimony, pp. 4401 to 4404) contained but little that had not already been given. It is manifestly a difficult condition to adjust, as property such as poles may be moved at any time and their use as between different classes of lighting changed.

The amount of $19,200.58 eliminated as property not now in existence comprises 12 pages of small items pertaining to lighting equipment purchased between 1882 and 1899. It is believed that the greater part, if not all, of this equipment has long since disappeared. On account of the reasons before given, however, and further that operating expenses may contain the renewal of some of this property,

as noted in connection with poles and overhead lines, it is pro-
1156 posed to restore the entire amount to plant account. While poles are not included in this figure, it does include other lighting accessories. Reference is again made to the section poles and overhead lines, where the elimination of $47,505.20 is restored to plant account. This amount is composed almost entirely of expenditures for poles and their installation, and these two amounts should be considered together. By restoring the total amount eliminated in these two sections to the plant account it is believed that the company has received the maximum allowance for this class of property.

Adding the amount of $19,200.58 to the figure given in Table 8, an adjusted total of $95,202.66 is obtained, as set forth in Table 11. The commission believes that this adjusted total should be considered in connection with the adjusted figure of $304,971.88 for poles and overhead lines.

Prior to January 1, 1910, the company did not keep a separate account of the cables used in its street-lighting service, nor of the conduits especially constructed for that purpose. The amount allotted by the commission's accountant under the head of "Street and park lighting," therefore, does not represent the entire cost of that system, but only that amount which can readily be separated from the preceding accounts. The extent of that portion of the company's plant devoted exclusively to street lighting is more clearly reflected in the "reproduction cost."

Line Transformers and Devices.

The total cost of line transformers and devices is shown to be $133,435.17.

The greater part of the cross-examination conducted by the company on this subject was an endeavor to establish the fact that a false basis had been used in arriving at not only the number of transformers owned by the company but their corresponding cost (testimony, pp. 1381-1420). As stated by Mr. Sangster, the number and size of the transformers were obtained from an inventory submitted by the company in response to his request. The contention of the company was that this inventory was incomplete and did not represent the actual transformers owned. This was not proven in any way, however, and the subsequent testimony given by Mr. Ham in his direct examination (testimony, pp. 4406-4407) produced no additional information as to its alleged incompleteness.

There is a doubt in the mind of the commission, however, as to whether the "devices" installed with transformers are fully accounted for in the property accounts as set forth in the various sections. That they are not fully represented by the figure of $1,063.30 shown in the accountant's report, page 199, is evident, although all of the expenditures shown by the transformer account of the company were included in this figure. It is still possible, and very probable, that the difference between this figure and that shown by the commission's cost of reproduction report for devices, amounting to

$16,298.60, may be included in some one or all of the various overhead construction accounts. This can not be conclusively proven, however, and it does not seem proper to allow this assumption to overbalance the fact that the cost of these devices is not included with transformers. In order that every meritorious claim of the
1157 company may be accorded consideration, as has been done in all other instances where uncertainty and doubt exists, it is proposed to add to plant account the difference as above noted, which amounts to $16,298.60. This makes an adjusted total of $149,733.77, as per Table 11.

Electric Services.

The cost of the services owned by the company is shown to be $387,434.10. No modification of this figure is required as it represents the total book cost, and its correctness was not questioned.

Electric Meters.

The cost of the electric meters is shown to be $292,248.17. The comments as to inventory given in a preceding section in regard to transformers may be applied similarly to electric meters. Quantities and costs for both were obtained from inventories of the company. The attempt to disprove either of these inventories was not successful, in the opinion of the commission, and this is evidenced by reference to the cross-examination (testimony, pp. 1421 to 1439). This is further substantiated in that the subject is not particularly referred to in the subsequent testimony given during the direct examination of the company's accountant.

Attention is directed to the testimony (pp. 1713 and 1714), where the cost of installing meters is discussed. According to the Interstate Commerce Commission classification, account No. E326, such costs may or may not be capitalized; it being left entirely optional with the company. Investigation of the accounts of this company revealed the fact that its policy in this respect was to include such cost in operating expenses. This treatment is considered conservative accounting and entirely proper.

It is apparent that the company gave this question considerable attention before adopting a policy which it has continued to follow to the present time. In the final table submitted by the company showing the cost of construction and equipment (testimony, pp. 4626 and 4627), no allowance was made for the cost of installing meters. Inasmuch as these charges in the past have been included in operating expenses, it is not proposed to restate the accounts and include them as plant.

Therefore, cost of meters, exclusive of installation cost, is forwarded to Table 11 as $292,248.17.

Arc and Incandescent Lamps and Electric Signs.

The cost of property included under this general heading is shown to be $50,367.23. It is also shown in the report that additional property originally costing $37,307.24 has been eliminated as not being in existence. The details of this amount are included in the supplementary data prepared for the company and comprise eight pages of items purchased between 1882 and 1899 at a cost of $47,778.89.

By reference to the testimony (pp. 1684 to 1692), the procedure followed in arriving at the total cost of this property is outlined by the commission's accountant. An inventory was obtained from the company and prices applied. The question in connection
1158 with lamps, apparently, is whether or not the fixtures have been fully accounted for by the report. Mr. Sangster states that these fixtures are included with the section on street and park lighting (p. 197), and are shown there to have cost $19,288.65. It is difficult to state from the data at hand whether all of the fixtures are included in this amount or not. As will be observed from the testimony, the company offered very little additional information that would assist the commission in its consideration of this item. It is not proposed to modify the figures shown in the report in any way, as it is believed that the lamps proper are fully accounted for, therefore the amount $50,367.23 is forwarded to Table 11 without change.

General Equipment.

The cost of the several classes of property included in general equipment is shown to be $59,932.28.

With the exception of furniture and fittings the amounts as stated for the different classes of property are believed to be correct. Inventories were obtained and the actual cost applied as to existing property. In the cross-examination (testimony, pp. 1703 to 1710), it was conclusively shown that the company had not charged the plant account with the cost of any furniture purchased during the period 1903 to 1911, inclusive. All such expenditures were charged to operating expenses and the plant account left as it was at the beginning of this period.

In order to accurately state the total expenditures thus charged to operating expenses it would be necessary to analyze the accounts, and such a procedure at this time is impracticable. As the company is entitled to an additional allowance for furniture, however, it is proposed to add to the plant account the sum of $14,601.11, which is the difference between the amount shown by the commission's cost of reproduction report of $26,899.85 and that of the accountant, amounting to $12,298.74. In making this addition, which gives an adjusted total for general equipment of $74,533.39, it is believed that the company has received ample allowance for this property. This amount is, therefore, set up in Table 11.

General and Miscellaneous Expenditures.

The cost of property grouped as general and miscellaneous expenditures is shown to be $157,807.71.

The accounting report shows that $65,266 of this amount represents payments for royalties and patent rights, and the balance, engineering and superintendence in the amount of $576.50 and executive salaries, etc., in the amount of $91,965.21. Different views were expressed as to the propriety of including the item patent rights ($65,266) in plant account. Dr. Bemis states that expired patents should be eliminated from the cost of plant (testimony, pp. 2468 to 2472). Ordinarily this is the proper accounting treatment, and is generally the procedure. Mr. Ham, accountant for the company, states that "even if the patents have expired they should be included in capital account, if not as patent rights certainly as a development cost." (Testimony, pp. 4532 to 4534.)

In view of the fact that the company was required to purchase these rights during the early years of its operations, it would
1159 seem to be no more than fair to include this item in the plant account, as stated by Mr. Sangster. Therefore the amount $65,266 has been carried forward to Table 11 as general and miscellaneous expenditures, and the balance, amounting to $92,541.71, has been included in Table 11 under the two heads "Engineering and superintendence" ($576.50) and "Executive salaries, etc." ($91,965.21).

Miscellaneous.

Reference is made to the accounting report, page 246, fifth column, headed "Plant sold, scrapped, etc." second item from the bottom of column, amounting to $38,325.71.

It is apparent that this amount was eliminated in error, and not only should be restored but the amount to be restored should be increased to $94,106.11. Although the details show that these items represent many small charges included in the property account of the United States Electric Lighting Co. prior to 1898, the fact still remains that the items could not be identified or their disposition traced. The total of these charges amounts to $120,965.69; and when sundry credits for fire insurance, etc., amounting to $26,859.58, are deducted, an amount of $94,106.11 still remains as property to be included as plant. (Testimony, pp. 3378 to 3386.)

It will be necessary to set up this amount as a separate item and to treat it as a part of the total cost of physical property. It can not be distributed as between the sections given in the accountant's report, as the actual details of the items can not be obtained. Therefore the amount $94,106.11 is added in Table 11.

Deduction for Equipment Sold, Scrapped, or Abandoned (Undistributed).

The deduction of $14,334.76 described as undistributed equipment sold, scrapped, and abandoned covers property appearing on the books of the company as having been sold; but it could not be distributed among the different sections shown in Table 8. Although the company claimed that this amount should be restored to capital account, they presented no evidence to prove that it was improperly deducted by the accountant. (Testimony, pp. 3308 to 3311.)

Loss on Equipment Sold, Scrapped, or Abandoned, Less Amount Charged to Operations.

The net amount eliminated from plant account, as shown by accountant's report and Table 7 hereof, is $388,953.85. This comprises the difference between the original cost of the property when installed and the amount subsequently credited to the plant account upon its retirement from service. Certain amounts have been transferred by the commission from operations as being proper plant expenditures and deducted from the gross amount eliminated. The propriety of making these eliminations has been discussed in the preceding sections, and such adjustments as have been deemed proper have been made.

Certain adjustments which have been made in the preceding sections reduce the total amount finally eliminated by the commission to $144,285.75. It is believed that this balance should be excluded from the total amount allowed as representing used and useful physical property, as every objection given by the
1160 company in regard to the various eliminations has been carefully considered and adjustment made when justified, as stated.

The contention of the company as expressed in the testimony (testimony, pp. 4541 and 4544) is that even though the plant account does contain items included under this general head they should be allowed as representing a necessary development cost.

It is the opinion of the commission that under certain circumstances losses of this nature should be treated as development cost. If, for instance, certain large expenditures on physical property had been made by the company in good faith, according to sound engineering and managerial judgment and, as such, in the interests of the service; if comparatively soon after, before such property had served a reasonably normal life and before the company had been able to collect, through its rates, a reasonable amount of depreciation reserve or refund therefor, the property in question had to be abandoned or other construction adopted in its stead, either by reason of act of Congress or other regulatory body, or by reason of requirements resulting from revolution in or extraordinary development of the art, then under such circumstances, a proper

charge to capital as development cost would ensue. The commission, however, finds no evidence of such conditions in connection with the items now under discussion.

Therefore, for the reasons given, the amount $144,285.75 is set forth in Table 11 separately as an amount not constituting cost of used and useful property for electric operations.

Summary Table 10.

The following table summarizes the amounts of these eliminations restored by commission and the amounts transferred from operations to plant account by the commission, all as explained in the foregoing discussion:

TABLE 10.

Loss on Equipment Sold, Scrapped, and Abandoned, Less Amount Charged to Operations.

Total, as per Table 7		$388,953.85
Less:		
Amount restored to steam-power equipment	$2,691.28	
Amount restored to electric-power equipment	5,050.00	
Amount restored to miscellaneous power-plant equipment	505.83	
Amount restored to poles and overhead lines	47,505.20	
Amount restored to underground cable	24,618.25	
Amount restored to street and park lighting	19,200.58	
Amount restored to miscellaneous	94,106.11	
	$193,667.35	
Amount transferred from operations to underground cable	20,101.04	
Amount transferred from operations to transformer devices	16,298.60	
Amount transferred from operations to furniture and fixtures	14,601.11	
	51,000.75	
Total deductions		244,668.10
Adjusted total forwarded to Table 11		144,285.75

1161

Overhead Charges.

Bearing in mind that in these valuation proceedings each utility is to be considered on its own merits, it may be conceded that it is perfectly proper that departmental expenses incurred from time to time in connection with new construction or extensions to the property of any company may be apportioned to the plant account and included as part of the cost of construction. The uniform system of accounts prescribed by the Interstate Commerce Commission, effective January 1, 1910, provides special accounts for this purpose. But, although no question need be raised as to the propriety of allowing such expenditures as part of the cost of construction, it may

still be doubted whether this course should be followed where it is at variance with the deliberate policy of the company.

It is not the practice of this company to apportion to the plant account on any uniform basis expenses which may be related to construction work. It might be surmised that if it were desired to adopt this course the accounting classification which went into effect in 1910 would constitute authoritative consent. But no change is evident in the method of recording plant expenditures since that time in respect of overhead charges, and it would naturally be concluded that the company deemed the change of no appreciable benefit.

The uniform system of accounts referred to prescribes the following accounts for recording such expenses as are here under discussion:

E 334. Engineering and superintendence.
E 335. Law expenses during construction.
E 335. Injuries during construction.
E 337. Taxes during construction.
E 338. Miscellaneous construction expenses.
E 339. Interest during construction.

These accounts are self-evident as to the nature of the items they are designed to include, if it be kept in mind that "E 338, miscellaneous construction expenses" covers salaries and expenses of executive and general officers, general office clerks engaged on construction accounts or work, office rent, insurance during construction, and store expenses not assignable to specific materials. Yet, it is evident that no such items appear in the figures disclosed in the accountant's report. In fact they are conspicuously absent, there being no overhead charges recorded in the accounts subsequent to 1908.

It would appear rather that the company elected to adhere to the traditional policy of charging to plant only such overhead expenses as were incurred out of the ordinary course of routine construction work. In so far as they could be discovered in the investigation of the accounts of the company, the expenses incurred amount to $18,602.61, as follows:

Engineering and superintendence	$95,637.40
Executive salaries, special services, etc	91,965.21
Total	187,602.61

For details of these charges reference may be made to the accountant's report (p. 13) and the various schedules submitted therewith. It may be sufficient to observe here that engineering and
1162 superintendence, as recorded on the books, represent expenses only in connection with the more important changes effected in the development of the company's business such as the construction of the new plant of the United States Electric Lighting Co. in 1897, the construction of the more modern plant at Benning in 1906, and the remodeling of substations at different periods. Execu-

tive salaries, special services, etc., comprise original installation expenses of the Potomac Electric Power Co., in 1896. It will be observed that, with the possible exception of the original construction of the United States Co., due account has been taken of all expenditures not of a regularly recurring nature in the conduct of the business in the past, which might be related to the items here under discussion. As there are separate items of a general nature appearing in the accounts of the United States Electric Lighting Co., at its inception, consideration of the facts at that time may be deferred to the discussion of these items, with the reservation that they may possibly include elements such as are here under review.

In view of these facts, it is evident that all annual expenses of administration, superintendence, damages, legal expenses, taxes, and insurance have been invariably carried in operating expenses, and have been included as such in public reports filed with Congress and with this commission. In its testimony offered in connection with this subject the company, while not attempting to repudiate these reports, contended that the items of overhead expenses should be given "consideration," and submitted statements purporting to revise the operating expense accounts in the process of which it was claimed to be shown that 13 per cent would be a proper allowance to add to the actual cost of construction according to their books. This percentage was established by assuming that the year 1915 represented a normal relative condition between the construction and operating departments. But it was shown by statements introduced in evidence by the commission's statistician that certain other years would give a percen-age considerably at variance with and usually lower than the result found by the company.

Without deciding as to the accuracy of the proposed precentage basis, it appears to this commission to be contrary to the best interests of all concerned to permit the company thus to revise its operating expenses. Much confusion must inevitably result from such a modification of what has heretofore been understood as "operating expenses" in the sense in which the term has been used by the company. Owing to the peculiar position occupied by statements of operating expenses in published reports, it is the opinion of this commission that it si subversive to the intent and purpose of effective regulation to acquiesce in any policy which would deprive such statements of their bona fide character, whether in the past of in the future.

In the light of this discussion, it is concluded that, except as to interest during construction as noted below, no allowance should be made for overhead charges over and above the amount which the company has included in construction costs.

Several items in the nature of interest are to be found in the accountant's summary of the company's plant account, which
1163 may be set forth as follows:

Interest on notes, etc.	$14,543.63
Interest on $650,000 original 5 per cent bonds of Potomac Electric Power Co.	132,500.00
Interest charged to cable account	2,962.65
Total	150,006.28

Some doubt might immediately arise as to whether interest on bonds and notes *are* to be considered under this head, but it need only be remarked that charges for interest during the period prior to operation usually take the practical form of interest on borrowed money, which may be found apportioned wholly or partly to cost of construction in the accounts of the company. In this case there is the further fact that the principal item represents interest for a period of over four years on the original bonds, issued by the present company, but, on the other hand, there is an entire absence of any provisions for carrying charges on the funds obtained for the construction of the Benning power plant, not to mention the expense which must necessarily have been incurred by the older company.

Owing to the piecemeal method by which a considerable part of the extensions to the plant has been constructed, it is certain that there would not be occasion for systematic borrowing at every step. Much of the smaller extensions would be financed by funds available from surplus earnings; nevertheless, it is not denied that the funds for the greater part of the construction work could only be obtained by borrowing from outside sources.

To make an allowance for this claim it is necessary to determine the average period of time which would elapse before the property could be brought to the point of producing revenue. The company claims that eight months would be a fair estimate for this purpose, which, at the rate of 6 per cent, would produce an equivalent of 4 per cent on all construction. It is well known that in the case of power-station equipment most of the apparatus is purchased under contract, the final payments being withheld until the apparatus is in effective operation. About one-third of the plant, reckoned on money expended, is therefore installed under circumstances which tend to show that, with proper engineering foresight, the company would not be called upon to pay for its equipment in installments on the average more than six months at most before producing revenue. Land and buildings, representing an investment of slightly over $1,000,000, would, of course, cover a longer period. But the distribution system, including services, transformers, meters, etc., which constitutes the remainder of the investment, would probably cover a much shorter period, owing to the gradual rate of growth of this part of the plant. If this reasoning is correct, it would appear that an allowance of 3 per cent, or a total of $240,000, on an investment of approximately $8,000,000, would be fair and reasonable. Therefore, this amount, $240,000, is carried forward to Table 11.

Construction in Process.

The cost of uncompleted construction at June 30, 1914, amounts to $1,586.38, as shown on page 234 of accountant's report, and is included in its entirety as physical property in Table 11.

1164 Original Plants and Franchises.

At the time of the organization of both the United States Co. and the present company certain payments were made in connection with the purchase of property and rights, the acquisition of which formed one of the purposes of the new companies. The whole circumstances under which these payments were made are not fully known, owing to the remoteness of the transactions. The items in question comprise the following:

United States Electric Lighting Co.—	
Heisler Electric Co. purchase (1882)	$100,000.00
United States Electric Lighting Co., New York franchises (1882)	100,000.00
	200,000.00
Potomac Electric Power Co.—	
Potomac Light & Power Co., purchase (1896)	208,189.50
Total	408,189.50

From the facts submitted in the testimony it is evident that in 1882 the United States Electric Lighting Co. issued $100,000 of stock in payment of the property, rights, and franchises of the Heisler Electric Co. and a like amount of stock for the franchises of the New York company. A bill of sale produced by the company, and other evidence adduced, shows that some physical property was undoubtedly conveyed by the Heisler company at this time, though it has in all probability long since entirely disappeared; but it can not now be ascertained what other valuable considerations, if any, were received for the stock issued. Considering the relatively small amount of actual physical property involved in the purchase, it would seem that emphasis was placed on the other considerations.

Whether the franchise or license privileges conveyed by the New York company were worth the $100,000 stock issued in 1882 is a matter which it would be useless to debate now. All that can be said in regard to these two transactions is that the Heisler Co.'s business and the concessions obtained from the New York company formed the bases upon which the United States Co. came into existence. To criticize the intrinsic value of the elements thus negotiated would appear to serve no good purpose, in view of the obscurity of the transactions. It would accordingly seem to be only fair to the com-

pany to allow these two items to remain in the investment without professing to form any conclusion in regard to their merits.

The facts surrounding the incorporation of the Potomac Electric Power Co. are similarly open to conflicting interpretations. This company took over certain assets and liabilities from the Potomac Light & Power Co., transferring the different items comprised in the balance sheet of the old company as they were recorded. Shortly afterwards there was issued to Crosby & Lieb, who transferred the property, $255,000 of stock in payment of the old company's plant and of some additional plant at Eckington which had been acquired by these two individuals. Certain specific items of physical property, mostly of the Eckington plant, were thereupon set up in the new company's books, which amounted to $46,810.50, leaving
1165 a sum of $208,189.50 in the account designated "original plant and franchises." With the $14,304.13 transferred from the old company's balance sheet, there was thus about $61,000 which could be identified with the physical property.

But it was admitted by Mr. Sangster that the one available ledger of the old company showed expenditures for only a limited period, the balance sheet being also incomplete at the date of sale. Furthermore, it developed from the testimony that these properties, whatever may have been their original cost, were purchased by the two parties named at a considerable bargain. On the other hand, it is equally well known that the same two individuals were the promoters of the Potomac Electric Power Co.

Resolving the facts here set forth, it is evident that the problem is to balance the admittedly incomplete statement of the actual cost of the property against the consideration paid by the promoters of the new company to themselves as owners of that property. No doubt there were other elements besides property values to be taken into account in connection with the transaction, but it is difficult to conceive that they would be of very great magnitude in the circumstances.

If it were expedient to apply a policy of measure for measure as the criterion in this case it might be possible to make some estimate of the amount involved. But the commission is of the opinion that the exercise of its functions in an important valuation should not be expressed in such discriminating processes where the company may reasonably be given the benefit of the doubt. The commission concludes, therefore, that there is some justification for this claim and the amount, $408,189.50, will accordingly be allowed to remain in the investment, and is set up as such in Table 11.

Franchises, etc., of the United States Electric Lighting Co.

In September, 1902, the Potomac Electric Power Co. purchased the property, rights, franchises, etc., of the United States Electric Lighting Co., paying therefor, in addition to the book value of the property, a premium of $1,977,150.63. This item appears in Table 7 hereof and is explained in detail in the accountant's report, pages

6 and 7, and in Mr. Sangster's direct examination (T., 485 to 497), and subsequent testimony has not changed the facts as stated therein.

In brief, on August 29, 1902, the United States Electric Lighting Co. and the Potomac Electric Power Co. were formally consolidated, these companies for a year or two previous to this having operated without actual competition, as they were controlled by the same interests with substantially common boards of directors. Instead of the United States Electric Lighting Co. taking over the smaller company, as might have been done, by securing a renewal of its expiring charter, the small company took over the larger company, and in so doing increased its securities, and to balance the same wrote up its assets on September 30, 1902, by the amount of $1,977,150.63.

The commission therefore excludes this amount, $1,977,150.63, from the cost of property and sets it up separately in Table 11.

1166 Preliminary and Organization Expenses.

Such items as appear to be more or less connected with preliminary and organization expenses aggregate $569,144.31, appearing in Table 7, subdivided as follows:

Special services in connection with obtaining loans and securing contracts for power for railways (1897)	$550,000.00
Legal expenses (1896)	8,492.90
Special services in connection with mortgage bonds, contract for power supply, etc. (1903-1906)	10,651.41
Total	569,144.31

Concerning the first item, it is to be noted that this payment represents the issuance of $550,000 capital stock to Crosby & Lieb for their services on behalf of the company in obtaining a loan from the United States Mortgage & Trust Co. and securing a contract for power with the Eckington & Soldiers' Home Railway Co. In other words, the owners of the company voted to themselves this stock as a commission for negotiating a loan and securing a contract in the interest principally, if not exclusively, of themselves. Notwithstanding the fact that they had already organized the company upon a basis which there is reason to believe afforded them a generous amount of stock and that part of the property acquired by the new company was even then utilized for the purposes of supplying power to the same railway company, they thus sought to further benefit by their early participation in the fortunes of the company. This item of extraordinary expense is set up separately from cost of used and useful property in Table 11.

The remaining two items, aggregating $19,144.31, are considered in the light of preliminary and organization expenses, and are allowed to remain in the total cost of the property, and so set up in Table 11.

Discount on Bonds.

There are two items included in the plant account of the company that represent discount on bonds, and amount in total to $166,073.56. These two items are listed separately in Table 7. The first consists of discount and commission on issue of $650,000 bonds, 1897 to 1899, amounting to $109,750, and the second of discount on $280,000, 4½ per cent bonds, Washington Railway & Electric Co., 1903, amounting to $56,323.56.

Under the present classification of accounts in effect January 1, 1910, charges of this nature are amortized over a period of years through operations and never constitute a construction charge. A previous classification of accounts prescribed for use by electric railway companies about 1903 permits the capitalizing of such charges, and this authority is quoted as substantiating the position of the company in that these charges should not be excluded from their plant account. While the company could be required to amortize these charges in the future, they may also be allowed to remain in the property account as being necessary expenditures in the early financing of the company.

It has seemed proper to consider this latter view, inasmuch as the expenses when incurred were properly chargeable to capital. In this way any additional claims for financing are disregarded, including consideration of the items for special services. Since
1167 1903 charges of this nature have been taken care of through operations, and need no comment in this opinion other than that the balance shown by the books as remaining in the account "unamortized debt, discount and expense," represents an amount still to be amortized through future operations. This amount of $166,073.56 is therefore included in Table 11 in the cost of property.

Materials and Supplies and Cash Working Capital.

The accountant's report shows materials and supplies in the amount of $150,000. The reproduction report of the commission's valuation bureau includes materials and supplies, at $128,893.08. This latter figure represents the actual ledger balance for materials and supplies as of June 30, 1914, the amount of such property then on hand and the book value thereof being considered as fairly representing normal quantity and reproduction cost as of that date. The difference between the two figures, namely, $21,106.92, represents an amount which the commission accountants added by reason of certain small tools, testing equipment on hand which the above ledger balance of $128,893.08 did not cover and which the engineering report of cost of reproduction included elsewhere under appropriate classifications.

The commission see no reason for changing these amounts, other than to separate them as above, and therefore the two amounts, $21,106.92 and $128,893.08, are carried forward to Table 11.

The accounting report contained an allowance of $90,000 for cash working capital. This was derived from a study of accounts as

indicated on pages 16 to 19 of accountant's report. The report on reproduction cost of commission's valuation bureau includes cash working capital in the amount of $135,000, derived by taking one-eighth of the annual operating expenses, including taxes, plus an allowance for extensions. In the mind of the commission there is some question of the propriety of including taxes in such a basis. Excluding taxes, one-eighth of the average annual operating expenses of the years 1910 to 1914, inclusive, amounts to $92,168.57. With cash working capital at $135,000, this would leave $42,831.43 for extensions, etc. The commission is of the opinion that this is ample. Therefore the amount $135,000 is set up in Table 11 for cash working capital.

Investments.

The company's controller, in his final summary of plant and equipment (testimony, pp. 4626 and 4627), included certain amounts carried on the books of the company as investments, as follows:

540 shares Electrical Testing Laboratories stock	$2,700.00
Two-thirds interest in Great Falls power site	1,000,000.00
Graceland Cemetery property	116,155.80
Total	1,118,855.80

It is considered that none of these investments should be allowed. The company at present receives a dividend of 10 per cent on the first item, and has in the past received still more liberal returns in the form of stock dividends. The last two items represent investment not only in advance of present needs, but in advance of any apparent future needs. The reasons which have influenced the commission in excluding the Great Falls power site as property
1168 not used nor useful are clearly set forth in the discussion of this subject under the reproduction cost below.

The Graceland Cemetery property was acquired for the future joint use of this company and the Washington Railway & Electric Co. The company is apparently well equipped for its present needs and the inclusion of this investment in the valuation does not seem justified. Mr. Ham in his testimony (pp. 4422 and 4423) takes up the purchase of this property and discusses the merits of the investment. The evidence would tend to show that this site, if ever improved, would be principally for the use of the Washington Railway & Electric Co. The matter of both these investments is further discussed under "Cost of reproduction."

This amount, $1,118,855.80, is therefore set up in Table 11 separately from the cost of used and useful property.

Summary, Table 11.

In summarizing the foregoing conclusions the commission finds the following amounts to represent, "as nearly as practicable, the

amount of money expended in the construction and equipment" of the property of respondent company, herein referred to as its "Historical cost," as of June 30, 1914.

TABLE 11.

Final Summary, Showing Revisions of and Additions to Tables 7 and 8, and Representing the Findings of the Commission as to the "Historical Cost" of the Property of the Potomac Electric Power Co. as of June 30, 1914.

Land		$331,556.86
Buildings		678,217.98
Steam power equipment		737,919.56
Electric power equipment		1,151,767.00
Turbo-generator equipment		770,290.03
Miscellaneous power-plant equipment		37,954.28
Poles and overhead wires		304,971.88
Underground conduits		1,223,986.61
Underground cable		1,473,695.86
Street and park lighting[1]		95,202.66
Line transformers and devices		149,733.77
Electric services		387,434.10
Electric meters		292,248.17
Arc and incandescent lamps and electric signs		50,367.23
General equipment		74,533.39
General and miscellaneous expenditures		65,266.00
Miscellaneous		94,106.11
		7,919,251.49
Deduct for undistributed credits for abandoned property		14,334.76
		7,904,916.73
Engineering and superintendence		95,637.40
Executive salaries, special services, etc.		91,965.21
		8,092,519.34
Interest during construction		240,000.00
Construction in progress		1,586.38
Original plants, property, patent rights, etc.:		
Heisler Electric Co.	$100,000.00	
United States Electric Lighting Co. of New York	100,000.00	
Potomac Light & Power Co.	208,189.50	
		408,189.50

[1] Street and park lighting account does not include all street and park lighting property. Some included under poles and overhead wires, underground conduits and underground cables, respectively.

1169

Preliminary and organization expenses	$19,144.31
Discount on bonds	166,073.56
Tools, testing equipment, etc.	21,106.92
Materials and supplies	128,893.08
Cash working capital	135,000.00
Total cost of property used and useful for electric operations	9,212,513.09
Amounts stated separately, as in the opinion of the commission not constituting costs of property used and useful in electric operations:	
Land not used in electric operations	21,404.85
Property sold, scrapped, and abandoned	144,285.75
Premium on purchase of United States Electric Lighting Co. in 1902	1,977,150.63
Extraordinary expense (Potomac Light & Power Co.)	550,000.00
Investments:	
Stock in electric-testing laboratories $2,700.00	
Stock in Great Falls Power Co. 1,000,000.00	
Graceland Cemetery property 116,155.80	
	$1,118,855.80
Total not included in used and useful property	3,811,697.03
Grand total	13,024,210.12

Reproduction Cost.

Report of Commission's Valuation Bureau.

The report of the commission's valuation bureau, submitted by Charles L. Pillsbury, chief engineer, on the cost of reproduction of physical property of the respondent company, includes only physical property located within the District of Columbia used and useful for electric operations within the District. It excludes the following (account numbers having reference to the Interstate Commerce Commission classification of accounts):

Property Not Included.

Account E-302. Franchises.
Account E-303. Patent rights.
Account E-304. Other intangible electric capital.
Account E-340. Land in other departments.
Account E-341. Franchises in other departments.
Account E-342. Patent rights in other departments.
Account E-343. Other intangible capital in other departments.

Account E-344. Tangible capital in other departments.

Cost of promoting and financing only of account E-301.—Organization.

All property located without the District limits.

Certain property of transmission and distribution systems, namely, transmission lines and feeders, or portions thereof, within the District, but leading without and conveying no electric energy for use within the district.

Land comprising parcel 151/21 (formerly Graceland Cemetery). The company claimed ownership of this (although the District records do not contain information to establish such ownership).

1170 This parcel was appraised at $160,490, but was excluded from the costs of reproduction set forth in this report for the reason that, in the engineer's opinion, this parcel more properly belongs to Interstate Commerce Commission account E-340, land in other departments, i. e., land not devoted to electric operations.

This report excludes all consideration of intangible property, as the engineering department has had to do with physical and tangible property only.

Co-operation.

While the officials and employees of the company were courteous in their dealings with the commission's engineers, unfortunately the company, acting on the advice of its attorneys, declined to cooperate and in most cases politely declined to furnish specific information regarding the property except as to ownership, where ownership was in doubt, and except as to such information as was afforded by the official books, records, and drawings on file in the company's offices, and which were open to inspection. This attitude on the part of the company constituted a very serious handicap, materially increasing the cost and delaying the progress of the work.

Basis and Procedure.

The results set forth in Mr. Pillsbury's report were therein stated to have been determined as follows:

First. A careful, detailed inventory of the physical properties was made independently of the company.

Second. The company's available official records and data were examined in detail for facts relative to identification and description of inventory items, costs, and depreciation.

Third. Depreciation surveys were made in the field.

Fourth. A study was made of the expected lives of property items.

Fifth. Costs of materials and labor were compiled and analyzed.

Sixth. Costs of apparatus, materials, labor, etc., were applied to the inventory items.

Seventh. Contractors' percentage was added to totals or groups of costs where such items were considered as installed by a contractor.

Eighth. All items of the inventory, priced as above, were depreciated by deriving and deducting accrued depreciation to date.

Ninth. To the total base costs as above, certain proper and necessary general costs of the owner (overhead charges) were added.

Tenth. The general costs of the owner (overhead charges) were depreciated by deriving and deducting accrued depreciation to date.

Eleventh. Materials and supplies on hand and working capital as deducted were then added to the totals derived as above, thus finally giving total cost of reproduction and cost of reproduction less depreciation.

The various steps and the bases of these processes are briefly set forth in the report substantially as follows:

Inventory.

A careful field inventory was made of all parts of the property excepting material and supplies on hand and electric meters.
1171 This inventory was made with great care and in much detail on special forms printed for the purpose. The data obtained in this manner was then largely condensed and summarized for pricing.

Classifications and Divisions.

The inventory and summaries of costs were separated into the classifications as set forth in "Uniform System of Accounts," as prescribed by the Interstate Commerce Commission for electric corporations in the District of Columbia, under date 1909. But to facilitate the work, especially as the inventories of several utilities were made simultaneously, the inventories were taken and the work largely carried out in certain major divisions, corresponding to the departments of the engineering organization—namely, land, structures, power plant and substation equipment, transmission and distribution systems, general equipment. To these was added general costs.

Land.

This division comprises Interstate Commerce Commission classification account No. E-300, land devoted to electric operations.

In answer to written requests for information as to ownership of land, the company furnished lists of plots, of which they claimed ownership. These were compared with the records of the District of Columbia, and the inventory compiled therefrom. One plot of ground—namely, parcel 151/21 (formerly Graceland Cemetery), of which the company claimed ownership, although the District records do not contain information to establish such ownership, has been excluded for the reason that, in the opinion of the engineers, this parcel of land more properly belongs to Interstate Commerce Commission classification account E-340, land in other departments, i. e., land not devoted to electric operations. There are certain other plots of land included where some doubt as to (future) usefulness for electric operation arises, but which were included for lack of information as to the company's claims or intentions in the matter.

By order of the commission land was appraised by the District assessor and his assistants, the amount as appraised in each case representing the normal price, such as, in the opinion of the assessor, would be paid by a willing purchaser or willing seller in a bona fide sale with no special inducements either to sell or buy.

Structures.

This division comprises Interstate Commerce Commission classification accounts E-305, general structures; E-308, power-plant buildings; and E-317, substation buildings.

Where plans and specifications of buildings were available, they were carefully checked with the respective buildings in all important details and dimensions and then used on the ground in conjunction with detailed field surveys of the buildings themselves. In all cases, buildings were "piece billed"—that is, complete bills of material for each building were compiled and priced item by item.

In inventorying brickwork, for illustration, complete dimensions were taken from which the number of cubic feet of brick was
1172 determined. The number of brick per cubic foot was determined by actual count in representative locations in each building. From this data the number of brick in the respective walls was derived. Each kind of brickwork, such as common, face, backing, etc., was listed separately. Deductions were made for all openings.

In inventorying concrete work, all quantities were measured to determine the volume and listed under respective classifications, such as footings, slabs on ground, heavy foundations, beams, etc. Plain concrete was listed separately from reinforced concrete, and the reinforcing steel was also set forth independently. Forms were not included with concrete, but were listed separately under various divisions, such as slabs, columns, beams, walls, etc., and on basis of square feet of contact surface.

Quantities of structural steel were determined in the field, giving size, length, shape, and weight, classified according to usage, and reduced to weights in pounds.

A full bill of material was made of carpentry.

Each piece of millwork, such as doors, windows, etc., was sketched and dimensioned, and priced as a whole, including glazing, painting, hardwood, etc.

Power Plant and Substation Equipment.

This division comprises Interstate Commerce Commission classification accounts E-309, furnaces, boilers, and accessories; E-310, steam prime movers; E-314, electric generators; E-315, accessory electric power equipment; E-316, miscellaneous power plant equipment; and E-318, substation equipment.

All power plant and substation equipment was examined and inventoried in detail. Every machine and individual piece of ap-

paratus was separately listed and described. Switchboards, conductors, accessories, piping, etc., were detailed, and bills of materials prepared.

Transmission and Distribution.

This division comprises Interstate Commerce Commission classification accounts E-319, poles and fixtures; E-320, underground conduits; E-321, transmission system; E-322, distribution system; E-323, line transformers and devices; E-324, electric services; E-325, electric meters; E-326, electric meter installation; E-327, street and park lighting system; E-328, commercial arc lamps; E-329, glower lamps; and E-333, other tangible electric capital.

The District of Columbia was divided into 222 sections, a map of each section was prepared, and the corresponding areas carefully surveyed in the field. The property items and descriptions thereof were entered upon special printed inventory forms prepared for the specific purpose, and poles, overhead lines, underground conduits, manholes and handholes, were also indicated upon the section maps. All manholes (and handholes) were opened, examined, sketched, and dimensioned, conduit ends so exposed were noted and sketched, cables in manholes were measured for diameter and length, and exterior characteristics noted. Conduit runs from manhole to manhole were accurately measured. In the same way, poles, pole fixtures, overhead wires, transformers, etc., were dimensioned and listed.

1173 All parts of property of the transmission and distribution systems of the company, with the exception of meters, were inventoried in the field. This work was carried out in considerable detail. To facilitate the work, various items having quite a number of variations were reduced to arbitrary types.

Great difficulty was experienced in detailing underground cables owing to absence of cooperation or assistance on the part of the company, lack of available company records, and the fact that the cables, being in service, could not be opened up for internal inspection. Because of these conditions, much time and effort was expended in the effort to determine with reasonable accuracy the capacities and make-up of cables.

Meters in service were determined from a study of the company's records.

The inventories of the various classes of property of transmission and distribution system were summarized, and unit costs were then applied.

As stated under heading "Property not included," certain transmission lines and feeders or parts thereof within the District but for use only in connection with energy transmitted without the District are not included.

Street and Park Lighting System.

Attention is called to the fact that property items included under this heading (inventory division, transmission, and distribution) are

only those so designated in the corresponding Interstate Commerce Commission classification. Conduits and manholes for all purposes are listed only under classification underground conduits, as provided by Interstate Commerce Commission classification. Apparatus of Accounts E-318—Substation Equipment, used exclusively for street and park lighting, is set forth independently.

General Equipment.

This division comprises Interstate Commerce Commission classification accounts E-306, general office, general shop, general store, and general stable (or garage) equipment; E-331, electric tools and implements; and E-332, electric laboratory equipment.

All of this equipment was inventoried in the field.

Cost of Reproduction Defined.

The act of Congress referred to, specifically provides that "the amount of money expended," or historical cost, and "the amount of money it would require to * * * reconstruct," or reproduction cost, should be independently determined, together with other elements of value. Therefore, cost of reproduction has been considered in its strict sense, unmodified by considerations of past actual costs, procedures, or physical conditions, except as such information was an aid in determining present costs and processes.

Mr. Pillsbury in his report and testimony defined "cost of reproduction," or "reproduction cost" to mean the estimated normal cost to acquire the lands and reproduce the substantially identical used and useful physical property as of July 1, 1914, as a con-
1174 tinuous process in the most efficient humanly practicable manner, under the hypothetical condition that the present property is nonexistent except for purposes of inventory. More specifically, Mr. Pillsbury based his report on the following assumptions and theories:

It is assumed that the property is reproduced as a continuous process during a period of three years, terminating July 1, 1914, and that the property in part is put to use and service started at the end of the second year.

It is assumed that the company is organized and incorporated prior to construction and the estimated costs of such organization for construction only (exclusive of all costs of promotion, financing, and operation) are included.

It is assumed that engineers are employed to make preliminary surveys and reports, to prepare plans and specifications, and to superintend the construction.

It is assumed that the property, aside from principal power plant and substation apparatus, meters, services, commercial lamps, and general equipment, is installed by contractors on percentage or cost-plus-fixed-sum basis, with certain major materials purchased directly by the company and the balance by the contractor.

It is assumed that the principal apparatus of power plant and substation equipment is contracted for directly with the makers under the engineers' specifications, and that meters, services, and commercial lamps are installed by the company.

Contractor's profit is included in the unit costs of paving.

It is assumed that the items of general equipment are purchased directly by the company.

The term "contractor's percentage," as used, applies in part to contractor's profit and in part to certain undistributed costs necessarily incident to the construction, but which, as a matter of convenience in application, were not allocated to the individual unit prices.

The theory was not that of comparative plant for equivalent service. The reproduction is intended to be that of a substantially identical property. No modifications or substitutions were considered except in the case of a few obsolete items of minor importance.

The present property was considered as existent for purposes of inventory only. In reproduction each item was considered as reproduced in identical location.

The construction is assumed to be carried on under physical and topographical conditions reasonably assumed to exist as of the date of the investigation, were the property itself (other than land) nonexistent except for the purpose of inventory.

Costs.

The costs as applied to the inventory are of three classifications, namely, unit costs, "contractor's percentages," and general costs. Unit costs are applied directly to the inventory items and in nearly all cases (and except where otherwise noted) include the labor cost to the contractor of the items in place. "Contractor's percentages" cover additional costs and profit of the contractor and are applied to items or groups or items, as the case may be, of property assumed to be installed by contractor. General costs refer to the necessary and proper general costs of the owner, constituting certain Interstate Commerce Commission accounts, and applied in the final total summaries only.

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Costs are not necessarily values. The costs applied are intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of value, cost of reproduction, unstable, unsound, and unsafe. In the case of certain commodities of fluctuating prices, such as copper and iron, the market prices were averaged over a period of seven years and the trend of prices studied not to the end that the prices adopted might be representative of average past conditions but that they might fairly represent prices as of the date of the investigation (July 1, 1914), under normal conditions such as should have obtained had the causes of fluctuations been non-existent. Prices current July 1, 1914, were taken as to all commodities of stable prices, or the prices of which, as in the case of lumber, are on a steady upward trend.

In the case of certain power-plant machinery, now obsolete as to

manufacture, the costs applied were determined on the basis of what the costs would have been under normal market-price conditions, as of July 1, 1914, with present shop methods and efficiency, were identical apparatus still being manufactured with patterns, standard parts, etc., still available.

Depreciation.

Concerning depreciation, Mr. Pillsbury in his report set forth the following:

"Depreciation of the physical items of property of this company, a going concern, is held to mean the loss through loss of service life of capital assets represented by depreciable costs.

"Accrued depreciation, as set forth, does not indicate nor imply corresponding, nor any particular, physical deterioration, loss of efficiency, or loss of present serviceability, but does indicate corresponding less to date of investigation, with respect to total serviceability, or potential-service capability, through expiration of proportional part of service life—i. e., through loss of service life."

The engineers calculated the annual depreciation amount in conjunction with, and commensurate with, the accrued depreciation as set forth. This annual depreciation amount represents the present annual loss, as of July 1, 1914, of the capital assets represented by depreciable costs through loss of service life. It also represents the corresponding amount for refund of capital to compensate therefor.

The engineers also independently calculated, as hereinafter set forth, the present annual amount of annuity, commensurate with and applying only to the cost of reproduction undepreciated, which on a 4 per cent sinking-fund basis would provide for renewals, the capital in this case not being refunded but maintained.

The methods of determining depreciation as used by Mr. Pillsbury and the meanings of the terms used in the report are briefly explained as follows:

The lives and depreciation herein considered and upon which the report is based are those of individual property items, not of complete plants or the property as a whole.

1176 "Residual value" refers to the value as scrap or for other purposes remaining in the property item after the service life of the item in its present use has expired.

"Depreciation cost" refers to cost of reproduction minus residual value, i. e., the portion subject to depreciation. (This is sometimes called "wearing value," but the term was not adopted for this report, because costs are not necessarily values and because the word "wearing" is misleading in connection with depreciation as herein considered and defined.)

(Land, though not depreciable through loss of life, is included in depreciable costs in the same amounts as in reproduction costs in order that the corresponding per cent remaining—which per cents apply to depreciable costs only—may be shown as 100, and so that weighted average per cents remaining may be directly derived from column totals.)

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The age of the property item expressed in years to date of investigation, namely, to July 1, 1914.

Life means service life or useful life, and refers to the total period of time, expressed in years, during which the item is expected to usefully perform its service functions. Life is determined by adding age and remaining life. Remaining life means remaining expectancy of life, or the remaining period of years during which the item is reasonably expected to usefully perform its service function, and at the end of which period it is expected to be discarded or put to other use, whatever value then remaining being residual value. Life was considered as terminated by either physical or functional cause, as the case might be, and was estimated after actual inspection of the property item and consideration of all available facts relative to physical condition, maintenance, specific mode and extent of use, the state of the art, etc.

All physical property was inspected with reference to its physical condition, state of preservation, character of maintenance, etc., all as having bearing upon termination of life.

"Per cent remaining" is a term defined as the ratio of remaining life to life expressed as a percentage. (The term "condition per cent" is frequently used, but was not used in this case in order to avoid inference of physical condition.) The complement (or 100 per cent minus per cent remaining) is the ratio of age to life expressed as a percentage, and indicates the per cent of capital assets represented by depreciable cost lost to date through loss of service life (corresponding to accrued depreciation).

Where age could be ascertained with reasonable certainty, remaining life and life were determined as above, and the per cent remaining directly derived. Where age could not be ascertained with reasonable certainty, the per cent remaining (of same meaning as above defined) was judged largely from physical inspection and such relevant data as was available.

The per cents remaining with respect to the various property items are shown in both the final summaries herewith.

"Annual depreciation per cent" constitutes the per cent of capital assets represented by depreciable costs lost through one year's loss of service life, as of the date of the investigation (July 1, 1914). It is equal to 100 divided by the life in years, expressed as a percentage.

1177 "Annual depreciation amount" represents the present annual loss (as of July 1, 1914) of the capital assets represented by depreciable costs, through loss of service life. (It also represents the corresponding amount for refund of capital to compensate for such loss.) It equals the product of annual depreciation per cent and depreciable cost.

Depreciation of Emergency Power Plant.

The Fourteenth and B Street power plant of the company was abandoned as a normal generating plant at the time the Benning power plant was put into service. The company claim that this

Fourteenth and B Street plant is, and properly should be, held for emergency use, and it was considered that the plant might be reasonably retained as such until July 1, 1922.

The plant equipment was depreciated through two cycles, the first cycle being that of the individual plant items from dates of their original installation until the time when the plant ceased to operate as a normal generating plant, and became an emergency plant; the second cycle, that of the emergency plant as a whole from the time when it ceased to operate as a normal generating plant until the end of its expectancy of life as an emergency plant, namely, July 1, 1922.

The depreciation of the first cycle was determined for each separate plant item in the same way as all other depreciation was determined, the expectancy of lives of the individual plant items being those reasonably expected in case the plant as a whole had continued indefinitely as a normal operating plant. The total cost of reproduction less accrued depreciation was so determined for the plant items as of the date of termination of service as normal generating plant, and this amount was then taken as the base and depreciated as a unit through the second cycle on the basis of age to date of investigation, July 1, 1914, and life to July 1, 1922.

Depreciation of General Costs.

The amounts and per cents of depreciation of the various general costs are shown in the final summary by Interstate Commerce Commission classifications. Certain of the general costs are depreciated at the same rates as the base costs to which they apply. On the other hand, engineering, organization, interest during construction, etc., apply in part to the property as a whole, the results lasting as long as the "going concern" lasts, and in part to individual property items, the results disappearing with such items and depreciating accordingly. On this basis these general costs are depreciated at lesser rates than the base to which they apply, as indicated.

Annual Annuity on 4 Per Cent Sinking Fund Basis.

The annual annuity on 4 per cent sinking fund basis to provide for renewals as referred to above, and commensurate with and applying only to cost of reproduction undepreciated, was calculated independently for each inventory item separately depreciated,
1178 and in the same detail as accrued depreciation and on the same basis as to life, only substituting 4 per cent sinking fund for "straight line" calculations.

Materials and Supplies.

Materials and supplies on hand (in storerooms) were not inventoried. The amount set forth for this item is as determined from the company's books and records as of July 1, 1914, by your accounting department.

Working Capital.

The working capital as included consists of one-eighth of the annual operating expenses and real property taxes (as of July 1, 1914), plus an additional amount for property extensions.

Conclusions.

The report submitted by Mr. Pillsbury shows the following conclusions and summaries, Tables 12, 13, and 14, based upon the foregoing explanations and definitions:

TABLE 12.

Conclusions.

Inventory division of physical property.	Reproduction cost, A.	Reproduction cost less accrued depreciation, B.	Ratio of B to A.
A. Land	$433,792.00	$433,792.00	100.00
C. Structures	740,989.00	544,850.55	73.53
D. Power plant and substation equipment	2,497,334.89	1,769,478.40	70.85
E. Transmission and distribution systems	4,448,662.27	3,727,853.18	83.80
G. General equipment	87,919.84	63,352.66	72.06
H. General costs	1,492,497.00	1,324,143.05	88.72
Total	9,701,195.00	7,863,449.84	81.06
Materials and supplies	128,803.08	128,803.08	100.00
Working capital	135,000.00	135,000.00	100.00
Total	9,965,088.08	8,127,342.92	81.56

Annual depreciation:

Corresponding to and commensurate with cost of reproduction less accrued depreciation	$251,637.76
Equals rate on total cost of reproduction ($9,965,088.08) of ..... per cent	2.53
Equals rate on cost of reproduction of C to H, inclusive ($9,267,403), of ..... per cent	2.72

Annual annuity to depreciation reserve (for renewals) on 4 per cent sinking fund basis:

Applying to cost of reproduction undepreciated	$159,441.41
Equals rate on total cost of reproduction ($9,965,088.08) of ..... per cent	1.60
Equals rate on cost of reproduction of C to H, inclusive ($9,267,403), of ..... per cent	1.72

All as of July 1, 1914.

(Here follow Table 13 and Table 14, marked pages 1179, 1180, and 1181.)

Account No. and classification.

E-300. Land devoted to electric operations
E-301. Organization
E-302. Franchises
E-303. Patent rights
E-304. Other intangible electric capital
E-305. General structures
E-306. General equipment
E-307. Dams, canals, and pipe lines
E-308. Power-plant buildings
E-309. Furnaces, boilers, and accessories
E-310. Steam prime movers
E-311. Turbines and water wheels
E-312. Gas producers and accessories
E-313. Gas engines
E-314. Electric generators
E-315. Accessory electric power equipment
E-316. Miscellaneous power plant equipment
E-317. Substation buildings
E-318. Substation equipment
E-319. Poles and fixtures
E-320. Underground conduits
E-321. Transmission system
E-322. Distribution system
E-323. Line transformers and devices
E-324. Electric services
E-325. Electric meters
E-326. Electric meter installation
E-327. Street and park lighting system
E-328. Commercial arc lamps
E-329. Glower lamps
E-330. Electric motors and heaters
E-331. Electric tools and implements
E-332. Electric laboratory equipment
E-333. Other tangible electric capital
E-334. Engineering and superintendence
E-335. Law expenditures during construction (included in accoun

[1] Cost of promoting and financing not included in engineering report.
[2] Not included in engineering report.
[3] No item.

TABLE 13.

Final Summary by Interstate Commerce Commission Classifications.

	Inventory division.	Reproduction cost. A.	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation. (per cent).	Annual depreciation. (amount).	Accrued depreciation.	Reproduction cost less depreciation. B.	Ratio B to A
.....	A	$433,792.00	.....	$433,792.00	100.00	.....	.....	.....	$433,792.00	100.
.....	H	(1)	.....	.....	.....	.....	.....	.....	(2)	....
.....	..	(2)	.....	.....	.....	.....	.....	.....	(1)	....
.....	..	(2)	.....	.....	.....	.....	.....	.....	(1)	....
.....	..	(2)	.....	.....	.....	.....	.....	.....	(1)	....
.....	C	96,135.00	.....	96,135.00	67.98	3.05	$2,927.36	$30,780.45	65,354.55	67.
.....	G	72,131.52	$8,551.93	63,579.59	67.03	12.90	8,202.22	20,960.05	51,171.47	70.
.....	..	(3)	.....	.....	.....	.....	.....	.....	(3)	....
.....	C	524,529.00	.....	524,529.00	72.95	1.78	9,326.33	141,896.76	382,632.24	72.
.....	D	609,019.46	23,544.07	585,475.39	62.22	3.90	22,859.16	221,195.48	387,823.98	63.
.....	D	555,041.00	51,375.27	503,665.73	63.72	5.19	26,145.41	182,735.98	372,305.02	67.
.....	..	(3)	.....	.....	.....	.....	.....	.....	(3)	....
.....	..	(3)	.....	.....	.....	.....	.....	.....	(3)	....
.....	..	(3)	.....	.....	.....	.....	.....	.....	(3)	....
.....	D	254,814.68	29,309.63	225,505.05	58.45	4.95	11,157.14	93,703.04	161,111.64	63.
.....	D	85,396.98	5,971.08	79,425.90	79.62	4.41	3,501.07	16,184.20	69,212.78	81.
.....	D	25,883.90	1,351.38	24,532.52	64.46	3.49	856.40	8,719.12	17,164.78	66.
.....	C	120,325.00	.....	120,325.00	80.49	1.64	1,969.26	23,481.24	96,843.76	80.
.....	D	967,178.87	85,347.30	881,831.57	76.72	4.62	40,727.92	205,318.67	761,860.20	78.
.....	E	85,408.52	25.00	85,383.52	71.73	6.70	5,721.78	24,134.10	61,274.42	71.
.....	E	1,513,237.34	3,634.02	1,509,603.32	90.25	1.07	16,184.17	147,128.82	1,366,108.52	90.
.....	E	374,954.79	142,730.32	232,224.47	73.27	3.39	7,883.87	62,068.55	312,886.24	83.
.....	E	1,292,439.28	460,439.60	831,999.68	73.03	3.42	28,468.73	224,371.99	1,068,067.29	82.
.....	E	124,267.37	13,381.10	110,886.27	75.00	5.00	5,544.31	27,721.57	96,545.80	77.
.....	E	440,308.01	45,577.72	394,730.29	81.44	2.42	9,537.15	73,257.17	367,050.84	83.
.....	E	292,037.71	1,813.70	290,224.01	80.00	5.00	14,511.20	58,044.80	233,992.91	80.
.....	E	20,746.44	.....	20,746.44	80.00	5.00	1,037.32	4,149.29	16,597.15	80.
.....	E	292,586.40	28,600.81	263,985.59	63.68	3.40	8,977.53	95,874.98	196,711.42	67.
.....	E	7,548.57	688.50	6,860.07	60.00	5.00	343.00	2,744.03	4,804.54	63.
.....	E	1,805.88	.....	1,805.88	60.00	5.00	90.29	722.35	1,083.53	60.
.....	..	(3)	.....	.....	.....	.....	.....	.....	(3)	....
.....	G	6,194.39	.....	6,194.39	65.00	33.33	2,064.59	2,168.04	4,026.35	65.
.....	G	9,593.93	.....	9,593.93	85.00	5.00	479.70	1,439.09	8,154.84	85.
.....	E	3,321.96	956.22	2,365.74	75.00	6.67	157.79	591.44	2,730.52	82.
.....	H	350,246.00	.....	350,246.00	84.77	2.09	7,308.46	53,354.06	296,891.94	84.
338)..	H	.....	.....	.....	.....	.....	.....	.....	.....	....

under in account E-338.

TABLE 13.

Final Summary by Interstate Commerce Commission Classifications—Continued.

Inventory division.	Reproduction cost. A.	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation. (per cent).	Annual depreciation. (amount).	Accrued depreciation.	Reproduction cost less depreciation. B.	Ratio B to A

TABLE 13.

Final Summary by Interstate Commerce Commission Classifications.

ntory sion.	Reproduction cost. A.	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation. (per cent).	Annual depreciation. (amount).	Accrued depreciation.	Reproduction cost less depreciation. B.	Ratio of B to A.
A	$433,792.00	.....	$433,792.00	100.00	.....	.....	.....	$433,792.00	100.00
H	(1)	.....	.....	.....	.....	.....	.....	(2)	.....
.	(2)	.....	.....	.....	.....	.....	.....	(1)	.....
.	(2)	.....	.....	.....	.....	.....	.....	(1)	.....
.	(2)	.....	.....	.....	.....	.....	.....	(1)	.....
)	96,135.00	.....	96,135.00	67.98	3.05	$2,927.36	$30,780.45	65,354.55	67.98
)	72,131.52	$8,551.93	63,579.59	67.03	12.90	8,202.22	20,960.05	51,171.47	70.94
.	(3)	.....	.....	.....	.....	.....	.....	(3)	.....
)	524,529.00	.....	524,529.00	72.95	1.78	9,326.33	141,896.76	382,632.24	72.95
)	609,019.46	23,544.07	585,475.39	62.22	3.90	22,859.16	221,195.48	387,823.98	63.68
)	555,041.00	51,375.27	503,665.73	63.72	5.19	26,145.41	182,735.98	372,305.02	67.08
.	(3)	.....	.....	.....	.....	.....	.....	(3)	.....
.	(3)	.....	.....	.....	.....	.....	.....	(3)	.....
.	(3)	.....	.....	.....	.....	.....	.....	(3)	.....
)	254,814.68	29,309.63	225,505.05	58.45	4.95	11,157.14	93,703.04	161,111.64	63.23
)	85,396.98	5,971.08	79,425.90	79.62	4.41	3,501.07	16,184.20	69,212.78	81.05
)	25,883.90	1,351.38	24,532.52	64.46	3.49	856.40	8,719.12	17,164.78	66.31
)	120,325.00	.....	120,325.00	80.49	1.64	1,969.26	23,481.24	96,843.76	80.49
)	967,178.87	85,347.30	881,831.57	76.72	4.62	40,727.92	205,318.67	761,860.20	78.77
)	85,408.52	25.00	85,383.52	71.73	6.70	5,721.78	24,134.10	61,274.42	71.74
)	1,513,237.34	3,634.02	1,509,603.32	90.25	1.07	16,184.17	147,128.82	1,366,108.52	90.28
)	374,954.79	142,730.32	232,224.47	73.27	3.39	7,883.87	62,068.55	312,886.24	83.45
)	1,292,439.28	460,439.60	831,999.68	73.03	3.42	28,468.73	224,371.99	1,068,067.29	82.64
)	124,267.37	13,381.10	110,886.27	75.00	5.00	5,544.31	27,721.57	96,545.80	77.69
)	440,308.01	45,577.72	394,730.29	81.44	2.42	9,537.15	73,257.17	367,050.84	83.36
)	292,037.71	1,813.70	290,224.01	80.00	5.00	14,511.20	58,044.80	233,992.91	80.12
)	20,746.44	.....	20,746.44	80.00	5.00	1,037.32	4,149.29	16,597.15	80.00
)	292,586.40	28,600.81	263,985.59	63.68	3.40	8,977.53	95,874.98	196,711.42	67.23
)	7,548.57	688.50	6,860.07	60.00	5.00	343.00	2,744.03	4,804.54	63.65
)	1,805.88	.....	1,805.88	60.00	5.00	90.29	722.35	1,083.53	60.00
.	(3)	.....	.....	.....	.....	.....	.....	(3)	.....
)	6,194.39	.....	6,194.39	65.00	33.33	2,064.59	2,168.04	4,026.35	65.00
)	9,593.93	.....	9,593.93	85.00	5.00	479.70	1,439.09	8,154.84	85.00
)	3,321.96	956.22	2,365.74	75.00	6.67	157.79	591.44	2,730.52	82.20
[	350,246.00	.....	350,246.00	84.77	2.09	7,308.46	53,354.06	296,891.94	84.77
[	.....	.....	.....	.....	.....	.....	.....	.....	.....

t E-338.

TABLE 13.

Summary by Interstate Commerce Commission Classifications—Continued.

itory ion.	Reproduction cost. A.	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation. (per cent).	Annual depreciation. (amount).	Accrued depreciation.	Reproduction cost less depreciation. B.	Ratio of B to A.

E-336.	Injuries during construction (included in base costs)	..	.....	.....	.....	.....	.....	.....	.....	.....	.....
E-337.	Taxes during construction	H	$23,940.00	.....	$23,940.00	94.43	.40	$96.56	$1,332.66	$22,607.34	94.43
E-338.	Miscellaneous construction expenditures	H	483,654.00	.....	483,654.00	86.09	1.90	9,212.47	67,252.72	416,401.28	86.09
E-339.	Interest during construction	H	634,657.00	.....	634,657.00	92.69	1.00	6,346.57	46,414.51	588,242.49	92.69
E-340.	Land in other departments	..	(1)	.....	.....	.....	.....	.....	.....	(1)	.....
E-341.	Franchises in other departments	..	(1)	.....	.....	.....	.....	.....	.....	(1)	.....
E-342.	Patent rights in other departments	..	(1)	.....	.....	.....	.....	.....	.....	(1)	.....
E-343.	Other intangible capital in other departments	..	(1)	.....	.....	.....	.....	.....	.....	(1)	.....
E-344.	Tangible capital in other departments	..	(1)	.....	.....	.....	.....	.....	.....	(1)	.....
	Total	..	9,701,195.00	$903,297.65	8,797,897.35	79.11	2.86	251,637.76	1,837,745.16	7,863,449.84	81.06
	Materials and supplies	..	128,893.08	.....	128,893.08	100.00	.....	.....	.....	128,893.08	100.00
	Working capital	..	135,000.00	.....	135,000.00	100.00	.....	.....	.....	135,000.00	100.00
	Total physical property used and useful in electric operations (within the District of Columbia only)[2]	..	9,965,088.08	903,297.65	9,061,790.43	79.72	[3] 2.78	251,637.76	1,837,745.16	8,127,342.92	81.56

[1] Not included in engineering report.
[2] Items of transmission system (account E-321) within the District of Columbia, but used wholly in connection with energy transmitted without the District of Columbia, not included.
[3] This per cent applies to depreciable cost (including land). Per cent of total cost of reproduction as above equals 2.53.

TABLE 14.

Final Summary by Inventory Divisions.

Item.	Reproduction cost. A.	Residual value.	Depreciable cost.
A. Land, account E-300	$433,792.00	.....	$433,792.00
C. Structures (buildings), accounts E-305, E-308, E-317	740,969.00	.....	740,989.00
D. Power plant and substation equipment, accounts E-309, E-310, E-314, E-315, E-316, and E-318	2,497,334.89	$196,898.73	2,300,436.16
E. Transmission and distribution systems, accounts E-319, E-320, E-321, E-322, E-323, E-324, E-325, E-326, E-327, E-328, E329, and E-333	4,448,662.27	697,846.99	3,750,815.28
G. General equipment: General office, shop, store, stable and garage equipment, tools and implements, and laboratory equipment, accounts E-306, E-331, and E-332	87,919.84	8,551.93	79,367.91
Total base costs	8,208,698.00	903,297.65	7,305,400.35
H. General costs: Legal and organization expense, omissions and contingencies, engineering and superintendence, insurance, taxes and interest during construction; accounts E-301, E-334, E-335, E-337, E-338, and E-339	1,492,497.00	.....	1,492,497.00
Total	9,701,195.00	903,297.65	8,797,897.35
Materials and supplies	128,893.08	.....	128,893.08
Working capital	135,000.00	.....	135,000.00
Total physical property used and useful in electric operations within the District of Columbia only[1]	9,965,088.08	903,297.65	9,061,790.43

[1] Items of transmission system (account E-321) within the District of Columbia, but used wholly in connection with energy transmitted without the District

[2] This per cent applies to depreciable cost (including land). Per cent of total cost of reproduction as above, equals 2.53.

TABLE 14.

Final Summary by Inventory Divisions.

Reproduction cost, A.	Residual value.	Depreciable cost.	Per cent remaining.	Annual depreciation, per cent.	Annual depreciation, amount.	Accrued depreciation.	Reproduction cost less depreciation, B.	Ratio of B to A.
$433,792.00	.....	$433,792.00	100.00	.....	.....	.....	$433,792.00	100.00
740,969.00	.....	740,989.00	73.53	1.92	$14,222.95	$196,158.45	544,830.55	73.53
2,497,334.89	$196,898.73	2,300,436.16	68.36	4.58	105,247.10	727,856.49	1,769,478.40	70.85
4,448,662.27	697,846.99	3,750,815.28	80.78	2.62	98,457.14	720,809.09	3,727,853.18	83.80
87,919.84	8,551.93	79,367.91	69.05	13.54	10,746.51	24,567.18	63,352.66	72.06
8,208,698.00	903,297.65	7,305,400.35	77.15	3.13	228,673.70	1,669,391.21	6,539,306.79	79.66
1,492,497.00	.....	1,492,497.00	88.72	1.54	22,964.06	168,353.95	1,324,143.05	88.72
9,701,195.00	903,297.65	8,797,897.35	79.11	2.86	251,637.76	1,837,745.16	7,863,449.84	81.06
128,893.08	.....	128,893.08	100.00	.....	.....	.....	128,893.08	100.00
135,000.00	.....	135,000.00	100.00	.....	.....	.....	135,000.00	100.00
9,965,088.08	903,297.65	9,061,790.43	79.72	[2] 2.78	251,637.76	1,837,745.16	8,127,342.92	81.56

sed wholly in connection with energy transmitted without the District of Columbia, not included.
reproduction as above, equals 2.53.

1182 Adjustments by Commission's Engineer.

At the beginning of his direct testimony regarding the report of the valuation bureau on reproduction cost, Mr. Pillsbury said that he first wished to make a general statement. He then said (testimony, pp. 821-824) in part: "Under all of the circumstances and within the time available for final review by myself of all features of the work by our staff, the work was compiled and the final result determined according to the best of my knowledge and belief and according to the highest integrity, I am sure, of the entire staff. Upon further review of certain features of the work, I find a few minor adjustments which I would like to make, as affecting to a minor degree some of the figures." * * * "I am not prepared to state them now, but will state them during the hearing."

Accordingly, of his own volition, entirely voluntarily on his part as the testimony indicates, Mr. Pillsbury, during the proceedings, while in the witness chair made certain adjustments to the figures of the reproduction cost report of the valuation bureau, amounting to a total net addition of $270,475.74, raising the total cost of reproduction to $10,235,563.82. (Testimony, p. 2363.)

These voluntary adjustments are summarized from the evidence in the following table (15):

TABLE 15.

Additions to Reproduction Cost.

[Adjustments of Mr. Pillsbury.]

Account No.	Amount.	Remarks.
E-308	$8,223.00	Error in calculation of cement prices.
E-317	302.00	Do.
E-319	2,622.16	Increase in contractor's percentage.
E-320	57,208.93	Addition by reason of removal of obstructions.
E-320	34,858.60	Increase in contractor's percentage.
E-321	11,511.77	Do.
E-322	39,680.16	Do.
E-323	3,815.23	Do.
E-327	8,982.90	Do.
E-333	101.99	Do.
E-334	8,558.00	Due to increase in above accounts.
E-334	50,946.00	Increase for engineering on power plant equipment from 5 to 7 per cent.
E-337	15,095.00	Addition of taxes on transmission and distribution systems.
E-337	176.00	For taxes due to increase in accounts Nos. E-308 and E-317.
E-338	5,006.00	For omissions and contingencies due to increase in base costs.
E-338	88.00	For insurance during construction due to increase in base costs.
E-338	5,605.00	For legal and organization expenses due to increase in base costs.
E-339	17,695.00	For interest during construction due to increase in base and general costs.
	270,475.74	

Adding this amount to the total cost of reproduction new, as shown in Table 13, gives $10,235,563.82. (Testimony, p. 2363.)

Mr. Pillsbury submitted in evidence as Pillsbury Exhibit A (testimony, pp. 2599-2602), a table showing cost of reproduction, cost of reproduction less accrued depreciation and other depreciation figures as revised by these adjustments. Accordingly, these adjustments, summarized in Table 15, have since been incorporated, under Mr. Pillsbury's direction in revised conclusions and summary as
1183 pertaining to the valuation bureau's (Pillsbury) cost of reproduction report and as set forth in the followings Tables 16 and 17:

TABLE 16.

Revised Conclusions.

[This table corresponds to foregoing Table 12 with the amounts modified in accordance with the adjustments of Mr. Pillsbury as listed in Table 15.]

Inventory division of physical property.	Reproduction cost, A.	Reproduction cost, less accrued depreciation, B.	Ratio of B to A.
A. Land	$433,792.00	$433,792.00	100.00
C. Structures	749,514.00	552,332.55	73.69
D. Power plant and substation equipment	2,497,334.89	1,769,478.40	70.85
E. Transmission and distribution systems	4,607,444.01	3,864,373.57	83.87
G. General equipment	87,919.84	63,352.66	72.06
H. General costs	1,595,666.00	1,405,116.92	88.06
Total	9,971,670.74	8,088,446.10	81.11
Materials and supplies	128,893.08	128,893.08	100.00
Working capital	135,000.00	135,000.00	100.00
Total	10,235,563.82	8,352,339.18	81.60

Annual depreciation:		
Corresponding to and commensurate with cost of reproduction less accrued depreciation		$257,321.03
Equals rate on total cost of reproduction ($10,235,563.82) of	per cent	2.51
Equals rate of cost of reproduction of C to H, inclusive ($9,537,878.74), of	per cent	2.70
Annual annuity to depreciation reserve:		
(For renewals) on 4 per cent sinking fund basis applying to cost of reproduction undepreciated		$162,745.46
Equals rate on total cost of reproduction ($10,235,563.82) of	per cent	1.59
Equals rate of cost of reproduction of C to H, inclusive ($9,537,878.74), of	per cent	1.71

All as of July 1, 1914.

TABLE 17.

Revised Final Summary by Interstate Commerce Commission Classifications.

[This table corresponds with foregoing Table 13 with amounts modified in accordance with the adjustments of Mr. Pillsbury as listed in Table 15.]

Account No.	Reproduction cost, A.	Annual depreciation, per cent of reproduction cost.	Annual depreciation, per cent of depreciable cost.	Reproduction cost, less depreciation, B.	Ratio of B to A.
E-300. Land devoted to electric operations	$433,792.00	.....	.....	$433,792.00	100.00
E-301. Organization	(2)	.....	.....	(2)	.....
E-302. Franchises	(1)	.....	.....	(1)	.....
E-303. Patent rights	(1)	.....	.....	(1)	.....
E-304. Other intangible electric capital	(1)	.....	.....	(1)	.....
E-305. General structures	96,135.00	3.05	3.05	65,354.55	67.98
E-306. General equipment	72,131.52	11.37	12.90	51,171.47	70.94
E-307. Dams, canals, and pipe lines	(3)	.....	.....	(3)	.....
E-308. Power plant buildings	532,752.00	1.77	1.77	389,868.48	73.18
E-309. Furnaces, boilers, and accessories	609,019.46	3.75	3.90	387,823.98	63.68
E-310. Steam prime movers	555,041.00	4.71	5.19	372,305.02	67.08
E-311. Turbines and water wheels	(3)	.....	.....	(3)	.....
E-312. Gas producers and accessories	(3)	.....	.....	(3)	.....

1184

[1] Not included in engineering report.
[2] Cost of promotion and financing not included in engineering report; remainder in account No. E-338.
[3] No item.

TABLE 17.—*Continued.*

Account No.		Reproduction cost, A.	Annual depreciation, per cent of reproduction cost.	Annual depreciation, per cent of depreciable cost.	Reproduction cost, less depreciation, B.	Ratio of B to A.
E-313.	Gas engines	(3)	.....	.....	(3)	.....
E-314.	Electric generators	254,814.68	4.38	4.95	161,111.64	63.23
E-315.	Accessory electric power equipment	85,396.98	4.10	4.41	69,212.78	81.05
E-316.	Miscellaneous power plant equipment	25,883.90	3.31	3.49	17,164.78	66.31
E-317.	Substation buildings	120,627.00	1.64	1.64	97,109.52	80.50
E-318.	Substation equipment	967,178.87	4.21	4.62	761,860.20	78.77
E-319.	Poles and fixtures	88,030.68	6.70	6.70	63,155.30	71.74
E-320.	Underground conduits	1,605,304.87	1.03	1.03	1,454,676.72	90.62
E-321.	Transmission system	386,466.56	2.14	3.39	321,320.91	83.14
E-322.	Distribution system	1,332,119.44	2.24	3.42	1,097,045.71	82.35
E-323.	Line transformers and devices	128,082.60	4.48	5.00	99,407.22	77.61
E-324.	Electric services	440,308.01	2.17	2.42	367,050.84	83.36
E-325.	Electric meters	292,037.71	4.97	5.00	233,992.91	80.12
E-326.	Electric meter installation	20,746.44	5.00	5.00	16,597.15	80.00
E-327.	Street and park lighting system	301,569.30	3.08	3.40	202,431.73	67.13
E-328.	Commercial arc lamps	7,548.57	4.54	5.00	4,804.54	63.65
E-329.	Glower lamps	1,805.88	5.00	5.00	1,083.53	60.00
E-330.	Electric motors and heaters	(3)	.....	.....	(3)	.....
E-331.	Electric tools and implements	6,194.39	33.33	33.33	4,026.35	65.00
E-332.	Electric laboratory equipment	9,593.93	5.00	5.00	8,154.84	85.00

[3] No item.

E-333. Other tangible electric capital.....	3,423.95	4.81	6.67	2,807.01	81.98
E-334. Engineering and superintendence.	409,750.00	2.31	2.31	338,172.21	82.53
E-335. Law expenditures during construction (included in account No. E-338)	.....	.....	.....	.....	.....
E-336. Injuries during construction (included in base costs).....	.....	.....	.....	.....	.....
E-337. Taxes during construction.....	39,211.00	.60	.60	36,768.40	93.77
E-338. Miscellaneous construction expenditures	494,353.00	1.94	1.94	423,622.17	85.69
E-339. Interest during construction.....	652,352.00	.99	.99	606,554.14	92.98
E-340. Land in other departments.....	(1)	.....	.....	(1)	.....
E-341. Franchises in other departments..	(1)	.....	.....	(1)	.....
E-342. Patent rights in other departments.	(1)	.....	.....	(1)	.....
E-343. Other intangible capital in other departments	(1)	.....	.....	(1)	.....
E-344. Tangible capital in other departments	(1)	.....	.....	(1)	.....
Total	9,971,670.74	.....	.....	8,088,446.10	81.11
Materials and supplies.....	128,893.08	.....	.....	128.893.08	100.00
Working capital	135,000.00	.....	.....	135,000.00	100.00
Grand total	10,235,563.82	2.51	2.76	8,352,339.18	81.60

[1] Not included in engineering report.

Report of Company's Engineer.

As previously noted, the company submitted to the commission for the first time and placed in evidence the report of its valuation engineer, Harold Almert, consulting engineer, of Chicago, after the evidence of the commission's staff had been introduced and the commission's witnesses cross-examined.

This report of Mr. Almert constitutes an estimate of cost of reproduction of the property of the company as of July 1, 1916, within the District of Columbia (except as to Great Falls water-power site without the District), both tangible and certain intangibles, and certain other intangibles added thereto, but not estimated on cost of reproduction basis.

1185 The so-called "Grand summary" (by Interstate Commerce Commission classifications), page 8 of Mr. Almert's report, is here reproduced (as Table 18):

TABLE 18.

Cost of Reproduction Report of Harold Almert as of July 1, 1916.

[Grand Summary.—I. C. C. Classification.]

Interstate Commerce Commission account No.	Account name.	Amount.
300	Land	$830,967.44
301-335	Legal and organization expense	262,542.00
302	Property rights in easements	2,500,000.00
304	Development cost	2,115,323.00
305	General structures	197,121.00
306	General equipment	97,185.01
308	Power-plant buildings	725,973.00
309	Furnaces, boilers, and accessories	797,295.23
310	Steam engines and turbines	1,053,658.67
314	Electric generators	150,856.36
315	Accessory electric power equipment	175,534.74
316	Miscellaneous power-plant equipment	69,471.86
...	Benning extension	300,000.00
317	Substation buildings	172,588.00
318	Substation equipment	1,378,465.08
319	Poles and fixtures	158,908.43
320	Underground conduits	2,120,963.50
321	Transmission system	850,587.84
322	Distribution system	2,167,929.57
323	Line transformers and devices	156,142.21
324	Electric services	658,174.74
325	Electric meters in service	362,038.75
326	Electric meter installation	33,880.16
8	Arcs, transformers, and meters in stock and stores and supplies	172,084.89
327	Public lighting system	589,855.84
328	Commercial arc lamps in service	4,578.95
329	Commercial Glower lamps in service	296.78
331	Electric tools and implements	8,263.35
332	Electric laboratory equipment	17,385.20
333-A	Electric signs	6,004.32
333-B	Working capital	378,396.71
333-C	Preliminary operation	50,000.00
333-D	Financing	60,000.00
333-E	Compensation to conceivers	650,000.00
333-F	Preorganization expense	25,000.00

Interstate Commerce Commission account No.	Account name.	Amount.
333-G	Brokerage and commissions	700,000.00
333-H	Great Falls water power site	1,000,000.00
334	Engineering supervision and inspection	135,000.00
337	Taxes	131,271.00
338	Administration	180,000.00
339	Interest	1,791,644.00
	Grand total	23,235,387.00

Comparison of Commission and Company Engineering Reports.

For convenient reference in comparison, the commission's report as adjusted by Pillsbury, and the report of Almert for the company are brought forward from Tables 17 and 18, respectively, and set up together as Table 19.

TABLE 19.

Comparison of Almert and Pillsbury Reports.

Account No.	Almert classification.	Almert, as of 1916, from Table 18.	Pillsbury, as of 1914, from Table 17.
300	Land	$830,967.44	$433,792.00
301-335	Legal and organization (and franchise expense)[1]	262,542.00	([2])
302	Franchises. (See below "Property rights in easements.")	.....	.....
304	Other intangible electric capital. (See below "Development cost.")	.....	.....
305	General structures	197,121.00	96,135.00
306	General equipment	97,185.01	72,131.52
308	Power plant buildings	725,973.00	532,752.00
309	Furnaces, boilers, and accessories	797,295.23	609,019.46
310	Steam engines and turbines (steam prime movers)	1,053,658.67	555,041.00
314	Electric generators	150,856.36	254,814.68
315	Accessory electric-power equipment	175,534.74	85,396.98
316	Miscellaneous power-plant equipment	69,471.86	25,883.90
317	Substation buildings	172,588.00	120,627.00
318	Substation equipment	1,378,465.08	967,178.87
319	Poles and fixtures	158,908.43	88,030.68
320	Underground conduits	2,120,963.50	1,605,304.87
321	Transmission system	850,587.84	386,466.56
322	Distribution system	2,167,929.57	1,332,119.44
323	Line transformers and devices	156,142.21	128,082.60
324	Electric services	658,174.74	440,308.01
325	Electric meters in service (Pillsbury, all electric meters)	362,038.75	292,037.71
326	Electric meter installation	33,880.16	20,746.44

[1] Legal expense, for and during construction only, included by Pillsbury in account No. 338.

[2] Expenses relating to company organization and securing of franchises (not included in the Pillsbury report).

Account No.	Almert classification.	Almert, as of 1916, from Table 18.	Pillsbury, as of 1914, from Table 17.
327	Public lighting system	589,855.84	301,569.30
328	Commercial arc lamps in service (Pillsbury, all such lamps)	4,578.95	7,548.57
329	Commercial glower lamps in service (Pillsbury, all such lamps)	296.78	1,805.88
331	Electric tools and implements	8,263.35	6,194.39
332	Electric laboratory equipment	17,385.20	9,593.93
333-A	Electric signs	6,004.32	3,423.95
334	Engineering, supervision and inspection	135,000.00	409,750.00
337	Taxes	131,271.00	39,211.00
338	Administration	180,000.00	494,353.00
339	Interest	1,791,644.00	652,352.00
8	Arcs, transformers, and meters in stores and supplies (Pillsbury, materials and supplies only)	172,084.89	128,893.08
333-B	Working capital	378,396.71	135,000.00
	Total	15,835,064.00	10,235,563.82
302	Property rights in easements	2,500,000.00	.....
304	Development cost	2,115,323.00	.....
	Benning extension (since 1914)	300,000.00	.....
333-C	Preliminary operation	50,000.00	.....
333-D	Financing	60,000.00	.....
333-E	Compensation to conceivers	650,000.00	.....
333-F	Pre-organization expense	25,000.00	.....
333-G	Brokerage and commissions	700,000.00	.....
333-H	Great Falls water-power site	1,000,000.00	.....
	Grand total (Almert	23,235,387.00	.....

As hereinafter noted more specifically, several varying and conflicting factors must be kept in mind in attempting to make a comparison between these two sets of figures, namely:

(*a*) The Almert report purports to include all property within the District of Columbia (and Great Falls water-power site outside the District, both tangible and intangible, whereas the Pillsbury report was only intended to and does only include used and useful physical property within the District. All items of the Almert report below the word "total" (Table 19) are not comparable. Certain physical items of the Almert report are not included in the Pillsbury report, because not considered "used and useful" for electric operations.

(*b*) The Pillsbury report is as of July 1, 1914, with property used and useful as of that date, and with reproduction costs thereof as considered fair and normal as of that date. The Almert report is as of July 1, 1916, with all property as of that date at reproduction costs thereof, based not only on the abnormal war conditions
1187 then obtaining but on a most hypothetical, indefinite, and intangible relation thereto.

(*c*) The same property is not in all cases included under the same account numbers in the two cases, as, for instance: Accounts 310 and 314, the Pillsbury report includes the electric generators of all steam turbo generators under 314, electric generators, whereas Almert includes these, together with the steam ends, under 310, steam engines and turbines (steam prime movers); accounts 323, 325, and 328, the Pillsbury report includes in these accounts all transformers, meters, and all lamps, respectively, while Almert includes only those in service, those not in service being included by him in the account "Materials and supplies," etc.

(*d*) Almert includes in each account omissions and contingencies, detail engineering ("designs and specifications"), and all insurance, whereas in the Pillsbury report omissions and contingencies and insurance other than liability insurance and that on machinery in transit, are set up separately in account 338, and engineering and superintendence is set up in accounts 334 and 338.

(*e*) The Almert report assumes a general contractor over all subcontractors, with corresponding additional percentage cost allowance. The Pillsbury report assumes no general contractor over all, but individual contracts, under the supervision of the company's staff and that of its consulting engineers for various parts of the construction.

(*f*) Account 301-335 of Almert's report includes preorganization expense. Pillsbury includes (in account 338) organization for and during construction only, preorganization expenses having been purposely excluded for independent consideration by the commission.

(*g*) The Almert report is based upon a five-year period of reproduction with all money obtained at the beginning as against a three-year period of reproduction with the money obtained at the beginning of each year in the case of the Pillsbury report, resulting, among other things, in considerably higher so-called "overhead charges" or "general costs" in the former.

Alleged Errors and Omissions.

Before proceeding to a more detailed discussion of the differences in these engineering reports it will be well to review certain claims made by the company during the hearings as to alleged "errors and omissions" applying to the Pillsbury report and as introduced in evidence by the company as "Almert Exhibit No. 10." (Testimony, pp, 3680-3681.)

As a reading of the said Almert Exhibit 10 will indicate, many of these alleged omissions and errors were set forth merely as comments by the company's valuation engineers without accompanying substantiating evidence, and in most cases with little or no detail or description by which a true analysis could be made. In many cases the statement was merely made that such and such items and large groups of items should be a certain stated amount in cost rather than the amount set forth in the commission engineer's report, but with no reason for such increased amount or even statement as to whether the differences were due to character or quantity of property or unit costs thereof.

Where practicable, a check was made by the commission's engineers, and in each such study was given to the item as was practicable with the data submitted.

1188 Certain alleged differences were of quantities only, but whether due to different dates of inventories or to errors on the one side or the other could not be established. Other alleged differences were *were* due to the inclusion by commission's engineers of the alleged omitted items under other classifications where the company had not identified them.

After full consideration, the commission makes certain allowances, totaling $67,574.50, in part believed to be justified by the facts and in part to give the company the benefit of the doubt. These allowances or adjustments by the commission are set forth in the following **Table 20**:

TABLE 20.

Additions to Reproduction Cost.

[Allowances by Commission.]

Interstate Commerce Commission account No.	Amount base costs only.	Amount contractor's percentage and general costs.	Total.	Remarks.
E-305	$2,317.35	$296.36	$2,613.71	Office building, Fourteenth and C Streets.
E-308	15,452.49	2,057.56	20,266.05	Power plant building, Fourteenth and B Sts.
E-308	2,756.00			Steel piling, Benning power plant.
E-316	11,319.26	.....	19,954.64	Spare parts and traveling crane, power plant, Fourteenth and B Streets.
E-316	8,635.38			Spare parts, Benning power plant.
E-317	989.00	138.26	1,127.26	Substation buildings, No. 1 and No. 2.
E-318	776.08	.....	2,648.08	Equipment, Great Falls substation.
E-318	1,872.00			Spare parts, substations.
E-331	2,068.96	.....	2,068.96	Tools outside of storerooms.
E-332	7,256.80	.....	7,256.80	Instruments at temporary locations.
E-334	.....	2,948.00	2,948.00	Engineering and superintendence.
E-337	.....	495.00	495.00	Taxes during construction.
E-338	.....	3,775.00	3,775.00	Miscellaneous construction expenditures.
E-339	.....	4,421.00	4,421.00	Interest during construction.
Total	53,443.32	14,131.18	67,574.50	

Land.

The reproduction cost of the land devoted to electric operations included in the original report of Mr. Pillsbury was $433,792. This was based on the values placed upon the pieces of property by the assessor of the District of Columbia, who examined and appraised them at the request of the commission, as stated in the discussion of the subject under the heading of "Inventory."

A comparison of the land appraisement is shown below (Table 21):

TABLE 21.

Comparison of Appraisements of Land.

Location.	Area.	Rate, Pillsbury report.	Appraisement, Pillsbury report.	Appraisement, Almert report.
Square 220.....square feet..	3,852	$5.00	$19,260.00	$23,688.00
Square 259.....do.....	65,518	4.00	262,072.00	354,446.94
Square 431.....do.....	2,286	7.50	17,145.00	13,728.00
Square 518.....do.....	10,552	.75	7,914.00	12,663.60
Square 709.....do.....	18,374	1.35	24,805.00	31,424.00
Square 1176.....do.....	22,682	1.25	28,353.00	34,113.00
Square 1184.....do.....	39,286	.60	23,572.00	31,020.00
Square 1185.....do.....	48,138	.45	21,662.00	36,562.50
Square 2852.....do.....	6,000	.60	3,600.00	3,900.00
Square 2986.....do.....	17,831	.15	2,675.00	4,447.25
Parcel 169/9.....acres....	12.63	1,800.00	22,734.00	57,508.15
Total as included in Pillsbury report.....			433,792.00	.....
Parcel 151/21.....acres....	24.56	.....	160,490.00	227,466.00
Total as included in Almert report.....				830,967.44

1189 Mr. Pillsbury excluded parcel 151/21, known as Graceland Cemetery, appraised at $160,490, as land not used in electrical operations. The record shows that this tract of land is carried on the books of the company as an investment and, as testified by the company's vice president and controller, it was acquired, not for use in present operations, but in anticipation of future operations (testimony, p. 4422), and that it is proposed to use it as a shop, car house, storehouse, and storage yard in conjunction with the Washington Railway & Electric Co., by which the respondent company is controlled.

The land in square 709, appraised in the Pillsbury report at $24,805, is a triangular piece of ground about 190 feet by 210 feet by 220 feet, bordered by three streets. The property is divided into two parts by a strip 25 feet wide running across it, which is used by the City & Suburban Railway Co. for its tracks. No portion of it appears to be used by the respondent company for electrical purposes.

The commission is of the opinion that these two pieces of land should not be included in the reproduction cost of property now used and useful for electric operations of respondent company, and they are accordingly excluded therefrom in the final summary by the commission.

Witnesses for the respondent company testified that rail and water facilities available at certain of the parcels of land made that land particularly suitable for the purposes of the company, and claimed a higher rate therefor than if those facilities were not there. This claim affects the land in squares 1176, 1184, and 1185, in the vicinity of Thirty-third and K Streets, and also parcel No. 169/9, on which the Benning power station is located. The commission believes that some allowance should be made for the presence of these transportation facilities, and accordingly have increased the values for the pieces of land in squares 1176, 1184, and 1185 to the amount per square foot claimed by the company (see testimony, pp. 698 and 703, 704, where company accepts areas for land in squares 1184 and 1185 as found by the commission), as the differences in any event are small.

In the case of parcel 169/9 the commission believes that an increase equal to one-half the difference between the value placed upon it by the commission's witness and by the company's experts is just, fair, and reasonable.

Making allowance for these increases, and deducting for the two items to be stated separately, the commission finds the reproduction cost of the land of the respondent company, used and useful for electrical purposes as of July 1, 1914, to be $452,468.08, as shown in the following table (Table 22).

1190 TABLE 22.

Reproduction Cost of Land as Revised by the Commission.

Location.	Commission appraisement.	Increase over Pillsbury report of Table 21.
Square 220	$19,260.00	.....
Square 259	262,072.00	.....
Square 431	17,145.00	.....
Square 518	7,914.00	.....
Square 709	.....	(1)
Square 1176	34,113.00	$5,760.00
Square 1184	29,464.50	5,892.50
Square 1185	36,103.50	14,441.50
Square 2852	3,600.00	.....
Square 2986	2,675.00	.....
Parcel 169/9	40,121.00	17,387.00
Account E-300, land devoted to electric operations	452,468.00	43,481.00
Deduction, square 709 eliminated	.....	24,805.00
Net increase over total of land of Pillsbury report	.....	18,676.00

The above adjustment in land appraisements require- corresponding adjustments in "general costs" in accordance with the percentages shown in the Pillsbury report. These further adjustments are shown below (Table 23):

TABLE 23.

Adjustments in General Costs Due to Land Adjustments.

I. C. C. account No.—.	Classification.	Adjusted amount.	Increase over Pillsbury report, Table 17.
E–334..	Engineering	$2,262	$93
E–337..	Taxes	9,049	373
E–338..	Ensurance	905	37
E–338..	Legal and organization expense	15,158	626
E–339..	Interest	33,589	1,387
	Total	60,963	2,516

Property Not Used or Useful for Electric Operations.

Certain physical property of the company within the District of Columbia included in the total of the Almert report is not included in the total of the Pillsbury report because considered by the commission engineers to be neither used nor useful for electric operations. Of these items the Graceland Cemetery site has already been referred to and its exclusion sustained in the foregoing discussion of land. The remaining items are as follows (Table 24):

TABLE 24.

Property Other Than Land, Excluded by Commission Engineers Because Neither Used nor Useful for Electric Operations.

	Almert reproduction cost.
Structures:	
Dwellings, 115 Florida Avenue and 438 Washington Street	$2,195.00
Coal trestle, substation No. 12	643.00
Steel stack, substation No. 12	9,010.00
North stack, power plant B	9,197.00
Piling under north stack, power plant B	302.00
Economizer stack, power plant B	530.00
Power plant and substation equipment:	
Equipment, power plant A	3,270.60
Induced draft fan, power plant B	1,704.00
	26,851.60

1191 As indicated, the amounts are as given in the Almert report, as these items were not appraised by the commission engineers.

The dwellings referred to are stated in brief of counsel to be "intended for use of employees," but there is no direct evidence to show that they are so used, and they are accordingly excluded.

The other items consist of disconnected and unused equipment, which, in the opinion of the commission engineers are not only unused, but are not being held for use. As there may be some question as to the latter with respect to some of the items, the commission, to give the company the benefit of the doubt, restores $10,000 of the amount, as shown in Table 38.

Another item of land, square 709, included in the total of the commission's engineers' report has been excluded by the commission as neither used nor useful as set forth in the foregoing section "land."

Property Additions July 1, 1914, to July 1, 1916.

The commission's accountants have ascertained, from examination of the books of the company, the additions to property account from July 1, 1914, to June 30, 1916. These are shown in Table 25 below:

TABLE 25.

Additions to Capital Accounts July 1, 1914, to June 30, 1916.

I. C. C. Account No.	Classification.	Amount.
300.	Land devoted to electric operations	$33.63
305.	General structures	76,462.95
306.	General equipment	8,224.63
308.	Power-plant buildings	21,450.33
309.	Furnaces, boilers, and accessories	4,145.45
310.	Steam prime movers	1,597.26
314.	Electric generators	*.50
315.	Accessory electric-power equipment	12,289.98
316.	Miscellaneous power-plant equipment	507.83
317.	Substation buildings	.....
318.	Substation equipment	90,820.30
319.	Poles and fixtures	20,585.57
320.	Underground conduits	99,802.34
321.	Transmission system	42,183.75
322.	Distribution system	63,293.28
323.	Line transformers and devices	14,574.96
324.	Electric services	72,878.31
325.	Electric meters	51,740.86
326.	Electric meter installation	.....
327.	Street and park lighting system	51,280.47
328.	Commercial arc lamps	*967.20
329.	Glower lamps	.....
331.	Electric tools and implements	917.32
332.	Electric laboratory equipment	828.82
334.	Engineering and superintendence	4,687.92
336.	Injuries during construction	1,849.78
	Total	639,188.04
	Written off in respect to equipment sold or abandoned	*34,014.70
	Total net additions	605,173.34
	Deduct additions to Benning plant, July 1, 1914, to June 30, 1916, as per Almert report, p. 343	33,821.76
	Total net additions exclusive of Benning power plant	571,351.58

Items marked (*) are credits (deducted).

1192 Almert, as stated in his report, page 343, included "Bennings' extensions' at $300,000, as shown below the word "total" in Table 19, this being his estimate of final cost.

The above net additions to property actually costing $605,173.34 are included in the various accounts of the Almert report (Table 19)

but not in these amounts, as the Almert reproduction is as of July 1, 1916, as to both property and hypothesis of prices as herein discussed.

Mr. Almert, in his testimony (p. 3535) in answer to questions asked by Mr. Barbour and by Commissioner Brownlow, clearly and definitely stated that the unit prices applied to these property extensions were the same as determined by his staff for all and applied to all corresponding property items.

From study of Almert's testimony as to relation of prices between 1914, 1915, and 1916, as hereinafter referred to, and the testimony of the company witnesses, Edward P. Edwards and Roscoe Seybold, it is the opinion of the commission that these extensions are priced in the Almert report at at least 15 per cent over actual cost. From a conservative standpoint, however, the commission considers $690,000 as a fair estimate of the total of these extensions (exclusive of Benning), as included in the Almert report. Deducting the amount, $33,821.76 actual cost of Benning extensions to June 30, 1916, the balance, $656,178.24, or in round numbers, $656,000, may be considered as excess of Almert's "total" of Table 19 over Pillsbury's "total" of same table, due to these property extensions. This deduction is made in Table 26.

Comparison of General Costs—Overhead Charges.

In attempting to compare the report of the company's witness Almert with that of the commission's engineers, the problem will be facilitated by resolving each into an arrangement of accounts so as to separate the base costs and the general costs or overhead charges and then to first compare and discuss the latter.

For this purpose the Almert summary as per Table 18 is here set forth in rearranged form as Table 26.

The following explanations refer to the reference letters of Table 26:

(*a*) Derived as explained in preceding discussion under the heading "Property additions, July 1, 1914, to July 1, 1916."

(*c*) So-called "General costs," the term adopted by Pillsbury in his report, and constituting costs often referred to as "overhead charges."

(*d*) Account 301-335, Legal organization and franchise expense," of the Almert report is stated by Almert as including legal expenses pertaining to construction, etc., as the heading indicates. The report does not show the amount of such legal expense independently. For the sake of comparison legal expense is here deducted from the Almert account, 301-335, and set up separately as "Legal expense" (*d*) in the same amount as included in the Pillsbury report, as indicated in the following Tables 27 and 28.

(*g*) Costs of "Detailed engineering" and of "Designs and specifications," respectively, were included by Almert in the base
1193 costs of his report at 5 per cent, or 2½ per cent as to certain minor accounts, such as meters, etc., all as specifically stated

in percentages in the Almert report, as, for illustration, at the bottoms of pages 123 and 213, respectively. The amounts commensurate with the percentages so indicated by Almert's total $469,075.81, indicated as (*g*) in Table 26, and correspondingly deducted from the Almert base costs of Table 26.

(*i*) "Omissions and contingencies" were included by Almert in his base costs, just as were the items "Detail engineering" and "Designs and specifications," referred to under (*g*), above, and as set forth on the same illustrative pages referred to above. These amounts, commensurate with the percentages so specified in the Almert report, total $491,838.05, indicated as (*i*) in Table 26, and correspondingly deducted from the Almert base costs of Table 26.

(*k*) The Almert account 8 of Table 18, in the amount of $172,084.89, includes, in addition to stores and supplies proper, arcs, transformers, and meters in stock, the latter as indicated on pages 1098, 1102, and 1107 of the Almert report, amounting in total to $42,951.29, leaving for stores and supplies only $129,133.60.

(*n*) See explanation with reference to (*d*)

(*p*) As set forth in Table 18.

The remaining letters should be self-explanatory. The account numbers as given are those of Almert Table 18.

The items of Table 26 below (*l*), "Total," are not comparable with the Pillsbury report, as none of such items are or were intended to be included in the latter. These items will be discussed hereinafter.

The general costs as set forth in this Table 26 are shown in comparison with the general costs of the Pillsbury report in Table 29.

Table 27 shows the general costs of the Pillsbury report as embodied under specific account numbers in Table 17. These general costs are resolved into further divisions for comparison with the Almert general costs as shown in Table 28 and in accordance with the explanations given under Table 27. The Pillsbury general costs are then finally shown in comparison with the Almert general costs in Table 29.

TABLE 26.

Analysis of Almert Report.

[Amounts from Table 18, Rearranged by Commission to Separate "General Costs."]

I. C. C. account number and reference letter.				
(*x*)	Base costs (I. C. C. accounts 300, 305 to 333A, inclusive, but exclusive of (*g*) and (*i*) set forth below; also including arcs, transformers, and meters in stock deducted from Almert account 8 in the amount of $42,951.29 as indicated below under (*k*)		$11,866,163.46	
	Deduct:			
300	Land	$830,967.44		
(*a*)	Property extensions other (than Benning) July 1, 1914, to July 1, 1916	656,000.00	1,486,967.44	
(*b*)	Base costs, plant and equipment other than land exclusive of property additions subsequent to July 1, 1914			$10,379,196.02
(*c*)	"General costs:"			
301-335	Legal, organization, and franchise expense	262,542.00		
(*e*)	Deduct: Organization and franchise expense, as included below as (*n*)	197,542.00		
			65,000.00	
(*f*)	Engineering and superintendence—			
(*g*)	Engineering deducted from base costs above	469,075.81		
334	Engineering, supervision, and inspection	135,000.00		
			604,075.81	
337	Taxes		131,271.00	
338	Administration		180,000.00	
339	Interest		1,791,644.60	
(*h*)	Subtotal, general costs, exclusive of omissions and contingencies		2,771,990.81	
(*i*)	Omissions and contingencies (deducted from base costs above)		491,838.05	
(*j*)	Subtotal, general costs, including omissions and contingencies			3,263,828.86
333B	Working capital			378,396.71
(*k*)	Stores and supplies (account 8, less arcs, transformers, and meters in stock, $42,951.29, included in base costs above)			129,133.60
(*l*)	Total			$14,150,555.19

1195

333C	Preliminary operation and adaptation	50,000.00	
(*n*)	Organization and franchise expense (deducted from 301-335 above)	197,542.00	
333F	Preorganization expense (engineering)	25,000.00	
333D	Financing, expense of negotiating only	60,000.00	
333E	Compensation to conceivers	650,000.00	
333G	Brokerage and commissions	700,000.00	
304	Development cost	2,115,323.00	
302	Property rights in easements	2,500,000.00	
333H	Great Falls water-power site	1,000,000.00	
(*p*)	Benning extension	300,000.00	
	Subtotal		7,597,865.00
300	Land (deducted above)		830,967.44
(*a*)	Property extension (other than Benning) July 1, 1914, to July 1, 1916 (deducted above)		656,000.00
(*q*)	Grand total		23,235,387.63

1196

TABLE 27.

Pillsbury General Costs.

[From Table 17.]

E 334.	Engineering and superintendence	$409,750
E 337.	Taxes during construction	39,211
E 338.	Miscellaneous construction expenditures	494,353
E 339.	Interest during construction	652,352
	Total	1,595,666

Account E 338, miscellaneous construction expenditures, was subdivided in the Pillsbury report (p. 58 of Part II) into the following:

(*a*) Omissions and contingencies; (*b*) legal and organization expense; and (*d*) insurance during construction, exclusive of liability insurance and insurance on equipment in transit which was included in the base costs.

(*b*) Legal and organization expense was further subdivided, in the working sheets, forming the basis of the report and as introduced in evidence in the testimony of Pillsbury (testimony, pp. 2034-2037), into the following: Law expenses pertaining to construction, company engineering and superintendence, organization and administration for and during construction.

The general costs of Table 27, subdivided in accordance with the foregoing with company engineering of "Legal and organization expense" added to E 334, engineering and superintendence (of consulting engineers) results in the following table (28):

TABLE 28.

Pillsbury General Costs.

[From Table 27 and Remarks Following.]

Item.	Amount.	Percentage applying to—	Per cent of base costs.
(1) Omissions and contingencies	$203,840.00	2.4336 per cent of base	2.4336
(2) Legal expense	65,000.00	0.7760 per cent of base	.7760
(3) Organization for and during construction	158,605.00	1.8936 per cent of base	1.8936
(4) Engineering and superintendence	466,750.00	5.4401 per cent of base+(1)	5.5725
(5) Insurance during construction	9,908.00	0.1154 per cent of base+(1)	.1183
(6) Taxes during construction	39,211.00	0.4570 per cent of base+(1)	.4681
(7) Interest during construction	652,352.00	7.0000 per cent of base+(1) to (6) inclusive	7.7883
Total	1,595,666.00		
Base	8,376,004.74		19.0504
Total	9,971,670.74		

TABLE 29.

Comparison of General Costs.

[Almert and Pillsbury.]

Almert, from Table 26.			Pillsbury, from Table 28.		
(*d*)	Legal expense	$65,000.00	(2)	Legal expense	$65,000.00
(*f*)	Engineering and superintendence	604,075.81	(4)	Engineering and superintendence	466,750.00
337.	Taxes	131,271.00	(6)	Taxes during construction	39,211.00
338.	Administration	180,000.00	(3)	Organization for and during construction	158,605.00
339.	Interest	1,791,644.00	(7)	Interest during construction	652,352.00
	Insurance[1]		(5)	Insurance during construction	9,908.00
	Subtotal	2,771,990.81		Subtotal	1,391,826.00
(*i*)	Omissions and contingencies	491,838.05	(1)	Omissions and contingencies	203,840.00
	Total	3,263,828.86		Total	1,595,666.00

[1] Included in base costs.

1197 A comparison of the Almert and Pillsbury general costs as per table 29 may now be discussed. The Almert general costs are higher than the Pillsbury general costs; first, because predicated on much higher base costs with inventory as of 1916 and with war prices then prevailing, as against inventory of 1914 and normal prices derived in connection therewith as of the Pillsbury report; and, secondly, because of differing judgment as to derivation of these general costs and of different hypotheses of periods of construction.

Legal expense of the Almert general costs, as hereinbefore noted, in explanation of table 26, constitutes one of the items of the Almert account 301–335, "Legal, organization, and franchise expense," the portion, "Organization and franchise expense," of this account not being set forth here as a general cost for comparison with the Pillsbury general costs, but hereinafter treated as a distinct item under the heading "Preliminary expenses prior to construction."

The commission has carefully considered the Pillsbury allowance of $466,750 for "Engineering and superintendence," in comparison with the higher allowance of Almert, and believes the Pillsbury allowance to be sufficient, taking into account the lesser base on which the Pillsbury allowance is predicated. This Pillsbury allowance for "Engineering and superintendence" consists of two portions—namely, $409,750 for engineering and superintending services of consulting and designing engineers and $57,000 for engineering and superintending services of company staff. These amounts in total are as follows:

The consulting engineering services constitute certain percentages of the base costs of the different inventory divisions. These percentages are set forth on page 58 of part 2 of the Pillsbury cost of reproduction report as submitted in evidence. Allowance for engineering with respect to plant equipment was subsequently increased by Pillsbury in the amount of $50,946. (Testimony, p. 2362.)

With this adjustment the percentages and amounts as applying to the respective inventory divisions of Table 16 (with transmission and distribution further subdivided by separating services, meters, and paving therefrom, as per details of report) are shown in Table 30. (In each case the percentages given apply to the corresponding inventory base plus the allowance made for omissions and contingencies in connection therewith, just as indicated in Table 28.)

TABLE 30.

Pillsbury Engineering and Superintendence.

Engineering and superintendence of consulting engineers:	
Land, 0.5 per cent	$2,169
Structures, 5 per cent	38,600
Power plant and substation equipment, 7 per cent	178,310
Transmission and distribution, 5 per cent	176,836
Services, 1.5 per cent	5,645
Meters, 1.5 per cent	4,739
Paving,[1] 0.5 per cent	2,528
General equipment, 1 per cent	923
Total engineering and superintendence of consulting engineers	409,750

1198

Engineering and superintendence of company staff:	
Chief engineer and general superintendent, $10,000 (3 years[2])	$30,000
Two assistant engineers, $6,000 (3 years[2])	18,000
Draftsman, $1,200 (3 years[2])	3,600
Assistant superintendent of meter department, $1,500 (2 years[2])	3,000
Assistant engineer of services, $1,200 (2 years[2])	2,400
Total engineering and superintendence of company staff	57,000
Total engineering and superintendence	466,750

The commission believes these amounts to be reasonable and proper. The total of this engineering, as shown in Table 28, amounts to 5.44 per cent of the total base plus the allowance for omissions and contingencies.

The taxes of the Pillsbury report (adjusted), amounting to $39,211, are, in the opinion of the commission, in accordance with the tax rates and the methods of assessment applied by the assessor of the District of Columbia to such actual property of respondent company as is actually taxed and as pertaining to the three-year period of reproduction assumed by commission's engineering staff.

Almert, in his report, as shown on page 1221 thereof, includes taxes at the rate of $1.50 per $100 of value, based on a two-thirds valuation, as relating to the construction period assumed by him and

[1] Engineering with respect to class of paving, construction, etc., principally by District of Columbia, not by the company.

[2] Equivalent period (years) charged to construction.

as applying to real estate, buildings, power-plant equipment, Bennings extension (not then built), substation equipment, transmission and distribution equipment complete, etc., whereas actual taxes are levied against this company only with respect to land, buildings, conduits, overhead wires, poles, and lamps. In other words, Almert has included taxes on a very large proportion of the property upon which no taxes are actually levied.

The commission believes that the amount allowed by Pillsbury for "Organization for and during construction" and as detailed in testimony (testimony, pp. 2032–2037), is reasonable and fair.

Almert includes all insurance in his base cost. Pillsbury likewise included in base cost all public and employer's liability insurance, all insurance on machinery and equipment in transit, and fire insurance on materials in storage. Land-title insurance and fire insurance on buildings and plant equipment and general equipment after installation, and amounting to only $9,908, are included in Pillsbury's general costs.

The most important difference between the general costs of Almert and Pillsbury is that of the item "Interest during construction." As testified to by Pillsbury, pages 2053 to 2061, "Interest during construction" of the Pillsbury report was calculated on the following assumptions:

(1) An equated period of construction of three years.

(2) An average of one-third of total investment made each year.

(3) One-third of total required amount of money secured annually at the beginning of each year.

(4) Six per cent per annum paid on funds received.

(5) Two per cent interest per annum received from banks on average unexpended balances.

1199 (6), (4), and (5), above resulting in 5 per cent net interest per annum paid on money invested each year.

(7) Operation of property begun at beginning of third year, with additions after that date placed in service practically as installed.

As per Pillsbury testimony, pages 2055 to 2056, this results in a weighted average of 7 per cent on the base. As interest was applied to not only the base but to all other items of general costs, the final result is 7 per cent on base plus other general costs, or 7.79 per cent on base only, as shown in Table 28.

Almert, on the other hand, assumes a four-year period of construction and a definite construction program during the four years, with all moneys for the entire construction obtained at the beginning of the construction period, with interest paid on such moneys at 6 per cent and with 3 per cent received on time deposits of unexpended balances and 2 per cent on demand deposits of unexpended balances, all as set forth in Almert Exhibits 2 and 3, and as referred to in testimony, pages 3583 to 3584. This results in interest chargeable to construction amounting to 11.32 per cent of the base upon which this interest is computed, as shown in Almert Exhibit 3.

The Pillsbury report, as stated therein and as hereinbefore quoted, is based upon the assumption that the reproduction is to be estimated

in accordance with the "most efficient, humanly practicable manner" of such reproduction. The commission considers that the Pillsbury assumed equated period of reproduction and assumed methods of securing and banking funds are not only humanly practicable, but constitute an entirely logical and fair assumption, and that the interest during construction so derived is equitable, and that the interest during construction as derived by Almert is founded upon an unnecessary and less efficient mode of procedure and financing, resulting in an excessive amount.

If an assumption is made of the Almert construction program, but with the Pillsbury assumption as to the procuring of funds and interest secured on unexpended balances applied thereto, an interest rate of only 5.9 per cent is derived, as shown in Table 31.

TABLE 31.

Interest During Construction, Using Almert Construction Program with Pillsbury Method of Procuring Funds.

Year.	Amount expended.	Rate.	Total interest.
First	$2,285,528	11	$251,408
Second	3,611,175	5	180,559
Third	4,639,255	5	231,963
Fourth	5,292,463	5	264,623
Total	15,828,421	5.9	928,553

Amount expended annually acquired at beginning of each year; 6 per cent interest paid on funds received; 2 per cent received from bank on unexpended balances.

Again, if a four-year construction period is assumed with operation begun at beginning of third year, as was assumed by Almert, but with all other assumptions according to the Pillsbury method, then interest during construction is derived only in the amount of $6\frac{1}{2}$ per cent, as shown in Table 32.

1200 TABLE 32.

Interest During Construction.

[Percentage Derived by Pillsbury Method Except Assuming a Four-year Period of Construction with Operation Begun at Beginning of Third Year Assumed by Almert.]

Year.	Net interest per year.				Total interest on one-fourth of total investment.
	1	2	3	4	
					Per cent.
1	5	6	....	....	11
2	....	5	....	....	5
3	....	....	5	....	5
4	....	....	....	5	5
Total					26

Twenty-six per cent interest on one-fourth of the total investment for one year is equivalent to 6.5 per cent interest on the total investment for one year.

Assumptions.

One-fourth of total investment made each year.

One-fourth of total amount of money required secured annually at beginning of each year.

Six per cent interest per annum paid on funds received.

Two per cent interest per annum received from banks on average unexpended balances.

Five per cent net interest per annum paid on money being invested each year.

Operation of property begun at beginning of third year with additions after that date being placed in service practically as installed.

The commission's engineering staff, at the same time that it was engaged in estimating cost of reproduction of the property of respondent company, was engaged in like work with respect to several other public utilities of the District of Columbia, using the same methods throughout and the same costs where applying under like conditions. In all these cases, except that of the telephone company, the work of the commission's staff was entirely independent of the work of the respective companies, and their valuation staffs engaged in making like reports. The inventory and estimating of cost of reproduction of the telephone property was done principally by the company, but with the collaboration, check, and general supervision of commission's staff. In the case of the Capital Traction Co. and

also in the case of the Washington Gas Light Co. a three-year period of reproduction was assumed by commission's staff and by the company staff, each without the knowledge of the other. In the case of the telephone company a three-year period of construction was agreed upon jointly. In the telephone case interest during construction was jointly agreed upon in exactly the same percentage as derived by commission's staff in the case of respondent company, namely, 7 per cent on the base and on other general costs. In the case of the Capital Traction Co. the amount for interest during construction as derived by the commission's engineers in exactly the same manner and same percentage as in the case of the respondent company, is more than as estimated by the company's valuation staff, as is shown in the comparative Table 33, as directly derived from the evidence in the case now before the commission.

The commission, after consideration of the evidence of the several cases now before it, and of opinions of other commissions and of courts, is of the opinion that the allowance of 7 per cent on the base for interest during construction, this interest charge also applying to all other general costs as well as the base, as derived by commission's staff in this case, is reasonable and fair.

1201 The Pillsbury allowance for omissions and contingencies in the amount of $203,840 is believed by the commission to be reasonable and such as not now to require further specific addition thereto, especially in view of the fact that the commission is making allowances for all alleged errors and omissions as to which the company has submitted reasonable evidence. As hereinbefore noted, the company submitted a list of alleged errors and omissions, which has been fully considered by the commission and allowances made where justified.

The commission, after full consideration of the evidence in this case, of the other similar cases now before it, and of the opinions of other commissions and of courts, concludes that the total of the general costs of the Pillsbury report, including the adjustments as made, is reasonable and fair, and that no addition should be made thereto except as may be reflected in the additional allowance of 5 per cent on the whole reproduction cost (except land, materials and supplies in stock, and working capital), as hereinafter explained and as embodied in Tables 39 and 40.

TABLE 33.

The Capital Traction Co. Case.

[Comparison of General Costs as Applied by The J. G. White Engineering Corporation and Charles L. Pillsbury.]

	The J. G. White Engineering Corporation.		Pillsbury.	
	Amount.	Per cent of base costs.	Amount.	Per cent of base costs.
Base costs[1]	$9,647,773	.....	$8,681,659	.....
General costs:				
Liability insurance and damages.	61,000	0.63	64,501	0.74
Engineering and superintendence.	492,223	5.10	434,071	5.00
Law expenses pertaining to construction	65,000	.67	65,000	.75
Taxes, insurance	23,000	.24	34,167	.39
Organization and administration for and during construction	219,000	2.27	152,635	1.76
Interest during construction	545,000	5.65	663,920	7.65
Total general costs	$1,405,223	14.56	$1,435,306	16.53

[1] Base costs, exclusive of land; interest, taxes, and insurance on land; materials and supplies; and working capital, inclusive of allowances for omissions and contingencies.

TABLE 34.

Washington Gas Light Co. Case.

[Comparison of General Costs as Applied by Humphreys & Miller (Inc.) and Charles L. Pillsbury.]

	Humphreys & Miller (Inc.).		Pillsbury.	
	Amount.	Per cent of base costs.	Amount.	Per cent of base costs.
Base costs[1]	$8,433,128	.....	$8,320,889	.....
General costs:				
Liability insurance and damages.	.....	.....	72,873	.88
Engineering and superintendence.	.....	.....	294,047	3.53
Legal and organization expenses.	.....	.....	289,114	3.48
Taxes	.....	.....	83,204	1.00
Insurance	.....	.....	11,038	.13
Interest during construction	.....	.....	635,979	7.64
Total general costs	$1,613,418	19.13	$1,386,255	16.66

[1] Base costs exclusive of land, interest and taxes on land, materials and supplies and working capital and inclusive of allowances for ommissions and contingencies.

1202

TABLE 35.

Chesapeake & Potomac Telephone Co. Case.

[General Costs, Amount Agreed upon by Company and Pillsbury.]

		Per cent of base costs, A.	Per cent of base costs, B.
A. Base costs, including land	$5,366,049	.....	.....
Omissions and contingencies	164,827	3.07	.....
B. Base costs as above plus omissions and contingencies	5,530,876	.....	.....
Legal and organization expense for and during construction	160,027	2.98	2.89
Engineering and architecture	366,650	6.83	6.63
Taxes and insurance other than liability insurance	28,295	.53	.51
Interest during construction	425,846	7.94	7.70
Total general costs exclusive of omissions and contingencies	980,818	18.28	17.73
Total general costs inclusive of omissions and contingencies	1,145,645	21.35	.....

Comparison of Base Costs.

Referring to Table 36, we may now consider the matter of comparison of base costs of Pillsbury and Almert. As has already been noted, this comparison is rendered very difficult, by reason, among others, of the divergent cost hypotheses. Almert in his report, page 1, says:

The prices adopted were those which, we believe, a competent contractor, if asked to bid on the construction of such a property on July 1, 1916, would use in making his estimate of cost.

This is verified in various similar statements of Almert in testimony (p. 3478). Therefore not only do the Almert prices reflect the prevailing highly abnormal, high-cost, world-war conditions of 1916, but are predicated upon the purely speculative conditions to follow that date. The assumed contractor, in determining his prices or costs, must needs look into the cataclysmic future, contemplate the unparalleled price levels even then prevailing, the congestion of manufacturing enterprises, the lack of supply to meet the abnormal demand, and under such unprecedented conditions attempt to form a conclusion as to what prices he could expect to pay during the assumed five-year construction period to follow. What basis is this for a "just amount" on which to predicate rates to the public? With what assurance can the commission contemplate such prices in attempting to reconcile the commission report therewith?

Contrast this with the cost basis of the commission's valuaton bureau. On page XXII of "Basis and conclusions," in the report of

the commission's engineers, the cost basis upon which the report is predicated is explained as follows:

Costs are not necessarily values. The costs applied are intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of value—cost of reproduction—unstable, unsound, and unsafe. In the case of certain commodities of fluctuating prices, such as copper and iron, the market prices were averaged over a period of seven years and the trend of prices studied, not to the end that the prices adopted might be representative of average past conditions but that they might fairly represent prices as of the date of the investigation (July 1, 1914) under normal conditions, such as should have obtained had the causes of fluctuations been nonexistent. Prices current July 1, 1914, were taken as to all commodities of stable prices or the prices of which, as in the case of lumber, are on a steady upward trend.

This explanation is in agreement with Pillsbury's testimony.

While, as indicated, no direct comparison is possible under
1203 such divergent hypotheses, yet some conclusions may be drawn from the evidence. As shown in Table 36, the adjusted Almert base is 30.68 per cent higher than the Pillsbury base, or, expressed otherwise, the Pillsbury base is 23.48 per cent less than the adjusted Almert base.

TABLE 36.

Comparison of Almert and Pillsbury Base Costs, Exclusive of Land, Materials and Supplies, Working Capital, and Property Additions Subsequent to July 1, 1914.

Pillsbury, adjusted total, exclusive of materials and supplies and working capital, Table 16		$9,971,670.74
Deduct as per Table 16:		
Land	$433,792.00	
General costs	1,595,666.00	
		2,029,458.00
Base		7,942,212.74
Almert base (*b*) from Table 26 ("1916 prices")		10,379,196.02
Pillsbury base as above ("1914 prices")		7,942,212.74
Excess Almert over Pillsbury		2,436,983.28
Excess percentage (Almert of Pillsbury)		30.68

Almert in his testimony (p. 3962) estimates his base cost of poles, wires, cables, and conduits as included in his report, to be 25 per cent higher than they would have been as of 1914. Evidently, however, Almert used prices for wires and cables still higher in proportion,

as is indicated by Table 37, showing an increase of 49.78 per cent in average cost per foot of the wires and cables referred to. Almert's letter of October 20, 1916, part of Almert Exhibit 10, purports to state what the cost referred to should have been, in his opinion, as of July 1, 1914.

In this connection the following quotation from the testimony is of interest:

Chairman Kutz: What I mean now is if we deducted from your cost of reproduction the 20 per cent, which would be the equivalent of an addition of 25 per cent on the 1914 price—that is, deducting from your 1916 cost 20 per cent on turbines and generating machinery, and on poles, wires, cables, and conduits, and deducting an equivalent amount on buildings comparable to an increase of 10 per cent—would we get results as of 1914 that, in your judgment, would be fair?

Mr. Almert: I think so.

Mr. Almert testified (Testimony, p. 3483) that the base price of copper which he first adopted and then abandoned (when the 1916 basis was finally adopted) was 15.75 cents per pound. The Pillsbury report (Testimony, p. 2144) includes base copper at 15.5 cents per pound, which was the basic cost derived after exhaustive study of copper supply and demand, market quotations, and actual costs over quite a number of years, etc. The valuation engineers of the Capital Traction Co., entirely independently and each without the knowledge of the other, derived and applied the same figure as commission's engineers, namely, 15.5 cents, as appears in the testimony in the Capital Traction Co. case now before the commission. The Chesapeake & Potomac Telephone Co. agreed with commission's engineers on this same base, namely, 15.5 cents. It is evident that Almert would have had practically the same result had he also made his report as of July 1, 1914.

1204 Again referring to the percentage difference between the Almert and Pillsbury base costs, we find that the testimony of other company witnesses tends to support even higher differences between 1914 and 1916 prices than as testified by Almert, and fully as high as the actual percentage difference between the Almert and Pillsbury bases, Table 36. (See testimony of Edwards, Seybold, and Crowell.)

Attention has already been called to the fact that comparison of the individual accounts of base costs is rather impracticable on account of the fact that similar allocation of property items to the different accounts were not always followed by Almert and the commission staff. For instance, counsel of company in brief, pages 396-397, says:

Except to call attention to the fact that under account E-314, electric generators, Mr. Pillsbury lists property to the extent of $254,814.06, and Mr. Almert lists property to the extent of only $150,856.36, and also to call attention to the fact that the materials embraced within this inventory division is just that class of material and property which has advanced in value most sharply since the date of the Pillsbury report.

The inference here given, and as inferred elsewhere, is that Almert was very conservative in the prices applied by him for electric generators, whereas Pillsbury in this one regard was evidently too high. This is an entirely unjustified inference to draw, being strictly contrary to fact, inasmuch as the Pillsbury report clearly shows that his account E-314, electric generators, includes also the electric generator ends or portions of steam turbo-generator units, whereas Mr. Almert, as his report clearly indicates and as he testified (Testimony, p. 3961), includes no portion of the large and costly steam turbo-generator units of the company in this account, but includes the complete machines in account E-310, steam engines and turbines, in which account the commission's engineers included only the steam portions of these turbo-generators. This division by the commission's engineers is strictly in accordance with literal interpretation of the rulings of the Interstate Commerce Commission as to these accounts.

TABLE 37.

Increase in Prices Used by Almert, in His Report as of 1916, for Wire and Cables Over His Prices as of 1914, Indicated in Almert Letter under Date of Oct. 20, 1916, Forming Part of Almert Exhibit 10, Hereinbefore Referred to under Heading "Alleged Errors and Omissions."

	Report.		Letter.	
	Total cost.	Feet.	Total cost.	Feet.
Overhead transmission	$27,443.32	342,706	$17,623.30	340,806
Underground transmission.	674,537.58	498,789	344,820.98	409,941
Overhead distribution.....	122,626.72	2,155,728	65,885.12	1,782,171
Underground distribution:				
220 volts.....	1,278,660.39	3,162,634	776,806.02	2,766,595
600 volts.....	263,701.46	344,257	155,300.69	339,473
2,300 volts.....	388,784.82	1,150,224	237,236.77	1,080,863
Overhead street lighting...	37,675.33	1,285,677	23,127.91	1,181,478
Underground street lighting	171,788.84	1,388,739	136,170.73	1,265,617
Total.....	2,965,218.46	10,328,754	1,756,971.52	9,166,944

Average cost per foot per letter, 19.1664 cents.
Average cost per foot per report, 28.708 cents.
Per cent increase average cost per foot, 49.78.

1205 Mr. Almert and the company having had the commission's engineer's report for several months for analysis and comparison as hereinbefore indicated, submitted a list of alleged errors and omissions, which list has been considered by the commission and conclusions set forth hereinbefore. It has been noted that the commission did not have corresponding opportunity to analyze the Almert report and cross-examine Mr. Almert regarding it by reason of the mode of procedure in the hearings permitted by the commission at the request of the company, such that the Almert report was not submitted until late in the hearings after the cross-examination of the commission's engineers had been completed.

In passing, however, it may be said that the Almert report, which counsel for the company so strenuously urges the commission to

adopt because of its superior accuracy (company brief, pp. 402-405), is not free from inaccuracies even in the simple matter of additions as embodied in the report itself as submitted. While the commission has not made, for the reason stated, any complete check of the Almert report, nor any detailed attempt to analyze it, an examination of certain accounts revealed errors in addition, as for example the total of all items forming account 327, public lighting, of Almert report (pp. 1087-1097) correctly added should be $467,872.28, whereas the additions as set forth in the Almert report show a total of $487,484.16, an increase by error of addition of $19,611.19; this error being further increased by Almert's addition of 21 per cent indirect charges, making the total error in favor of the company $23,730.40. A similar error against the company was noted on page 1050, where an addition with respect to the total for manholes is given as $212,139.42, when the correct addition should be $214,016.72, an error of $1,877.30. Again in connection with substation 12 (Almert report, p. 344), an error was noted in the company's favor in the amount of $613.83, due to carrying forward from the detailed report, page 684, the wrong amount.

The commission, having given full consideration to the evidence in the case, concludes that the base costs of the report of the commission's engineer as hereinbefore adjusted, and as shown in Table 3, are reasonable and fair as representing normal costs as of July 1, 1914, and that no additions should be made thereto except as may be reflected in the further adjustment consisting of a 5 per cent addition to the whole cost of reproduction, excepting land, materials, and supplies in stock, and cash working capital, next referred to under the heading "Final 5 per cent adjustment by commission."

TABLE 38.

Adjusted Final Summary by Interstate Commerce Commission Classifications.

[This table corresponds with foregoing Table 17 with amounts modified in accordance with the adjustments of the commission as listed in Tables 20, 22, and 23, and as noted in foregoing.]

Account No.	Reproduction cost. A.	Reproduction cost less depreciation. B.	Additions by Table 20.	Additions by Tables 22 and 23.	Adjusted reproduction cost.	Adjusted reproduction cost less depreciation.
E-300. Land devoted to electric operations	$433,792.00	$433,792.00	.....	$18,676.00	$452,468.00	$452,468.00
E-301. Organization	(1)	(1)	.....	.....	(1)	(1)
E-305. General structures	96,135.00	65,354.55	$2,613.71	.....	98,748.71	67,968.26
E-306. General equipment	72,131.52	51,171.47	.....	.....	72,131.52	51,171.47
E-308. Power plant and buildings	532,752.00	389,868.48	20,266.05	.....	553,018.05	410,134.53
E-309. Furnaces, boilers, and accessories	609,019.46	387,823.98	.....	.....	609,019.46	387,823.98
E-310. Steam prime movers	555,041.00	372,305.02	.....	.....	555,041.00	372,305.02
E-314. Electric generators	254,814.68	161,111.64	.....	.....	254,814.68	161,111.64
E-315. Accessory electric power equipment	85,396.98	69,212.78	.....	.....	85,396.98	69,212.78
E-316. Miscellaneous power plant equipment	25,883.90	17,164.78	19,954.64	.....	45,838.54	37,119.42
E-317. Substation buildings	120,627.00	97,109.52	1,127.26	.....	121,754.26	98,236.78
E-318. Substation equipment	967,178.87	761,860.20	2,648.08	.....	969,826.95	764,508.28
E-319. Poles and fixtures	88,030.68	63,155.30	.....	.....	88,030.68	63,155.30
E-320. Underground conduits	1,605,304.87	1,454,676.72	.....	.....	1,605,304.87	1,454,676.72
E-321. Transmission system	386,466.56	321,320.91	.....	.....	386,466.56	321,320.91
E-322. Distribution system	1,332,119.44	1,097,045.71	.....	.....	1,332,119.44	1,097,045.71
E-323. Line transformers and devices.	128,082.60	90,407.22	.....	.....	128,082.60	90,407.22
E-324. Electric services	440,308.01	367,050.84	.....	.....	440,308.01	367,050.84
E-325. Electric meters	292,037.71	233,992.91	.....	.....	292,037.71	233,992.91
E-326. Electric meter installation	20,746.44	16,597.15	.....	.....	20,746.44	16,597.15
E-327. Street and park lighting system	301,569.30	202,431.73	.....	.....	301,569.30	202,431.73
E-328. Commercial arc lamps	7,548.57	4,804.54	.....	.....	7,548.57	4,804.54

TABLE 38.—*Continued.*

Account No.	Reproduction cost, A.	Reproduction cost less depreciation, B.	Additions by Table 20.	Additions by Tables 22 and 23.	Adjusted reproduction cost.	Adjusted reproduction cost less depreciation.
E-329. Glower lamps	1,805.88	1,083.53	.....	.....	1,805.88	1,083.53
E-331. Electric tools and implements	6,194.39	4,026.35	2,068.96	.....	8,263.35	6,095.31
E-332. Electric laboratory equipment	9,593.93	8,154.84	7,256.80	.....	16,850.73	15,411.64
E-333. Other tangible electric capital	3,423.95	2,807.01	.....	.....	3,423.95	2,807.01
E-334. Engineering and superintendence	409,750.00	338,172.21	2,948.00	93.00	412,791.00	341,213.21
E-335. Law expenditures during construction (included in account E-338)	.....	.....	.....	.....	.....	.....
E-336. Injuries during construction (included in base costs)	.....	.....	.....	.....	.....	.....
E-337. Taxes during construction	39,211.00	36,768.40	495.00	373.00	40,079.00	37,636.40
E-338. Miscellaneous construction expenditures	494,353.00	423,622.17	3,775.00	663.00	498,791.00	428,060.17
E-339. Interest during construction	652,352.00	603,554.14	4,421.00	1,387.00	658,160.00	612,362.14
Total	9,971,670.74	8,088,446.10	67,574.50	21,192.00	10,060,437.24	8,177,212.60
Materials and supplies	128,893.08	128,893.08	.....	.....	128,893.08	128,893.08
Working capital	135,000.00	135,000.00	.....	.....	135,000.00	135,000.00
Total	10,235,563.82	8,352,339.18	67,574.50	21,192.00	10,324,330.32	8,441,105.68
Add for restoration in part of items eliminated because considered neither used nor useful (see Table 24 and remarks)	.....	.....	.....	.....	10,000.00	10,000.00
Grand total	.....	.....	.....	.....	10,334,330.32	8,451,105.68

[1] Cost of promotion and financing not included in engineering report; remainder in account E-338.

1207 Final 5 Per Cent Adjustment by Commission.

As hereinbefore noted under the heading "Comparison of base costs," the commission's engineering staff at the same time that it was engaged in the work of inventorying and determining the cost of reproduction of the physical property of the respondent company was engaged in like work, and made like reports, with respect to several other public utilities of the District of Columbia. With the exception of the Chesapeake & Potomac Telephone Co., this work was done by the commission's engineers independently of like work done at the same time by the valuation staffs of the respective companies. The commission's engineering staff submitted its reports as to the properties of these other companies in like manner, based on similar hypotheses, on inventories made in exactly the same manner, and with base costs derived and applied in the same manner, and the same where applicable under like conditions, as in the case of the commission's engineer's report on the cost of reproduction of the physical property of the respondent company. The companies themselves, through their respective valuation engineers, complied independently and submitted to the commission their reports on costs of reproduction. In the case of The Capital Traction Co. and the Washington Gas Light Co., detailed comparisons were then made between the respective companies' valuation staffs and Mr. Pillsbury, chief engineer of commission's valuation staff, and after full and detailed comparisons had been made, agreements were entered into between the companies' valuation engineers and Mr. Pillsbury; such agreements resulting in addition to the costs of reproduction as reported to the commission by Mr. Pillsbury, as follows:

In the case of The Capital Traction Co., the agreement referred to excluded land; interest, taxes, and insurance on land; materials and supplies in stock; and cash working capital. The adjusted agreement as finally entered into included all other property items embraced within the original report of the commission's engineers. The adjusted figure finally agreed upon was 6.54 per cent higher than the amount originally reported by the commission's engineers.

In the case of the Washington Gas Light Co., the adjustment as agreed upon excluded land; interest and taxes on land; materials and supplies in stock; and cash working capital, but included all other property items embraced within the original report of the commission's engineers, the adjusted figure finally agreed upon being 2.05 per cent higher than the amount originally reported.

In the case of the Georgetown Gas Light Co., a similar agreement was finally entered into between the company and Mr. Pillsbury resulting in an increase of 2 per cent over the amount as originally reported by him to the commission, excluding from this agreement land, interest, and taxes on land, materials and supplies in stock, and cash working capital, but including all other property items embraced within his original report in the other cases.

In the case of the Chesapeake & Potomac Telephone Co., the inventory and determination of cost of reproduction was made principally

by the company's engineering staff, but in collaboration with, checked by, and under general supervision of the commission's engineering staff, the amount finally determined being agreed upon by the company and Mr. Pillsbury.

1208 The adjustments above referred to in each case resulted in amounts lying between the corresponding totals as shown by the commission's engineer's reports and the respective reports of the company's valuation engineers.

The amounts as agreed upon were based in part upon the desire to give the company the benefit of the doubt and in part upon the desire to compromise in the case of certain items regarding which there was an honest difference of judgment.

Taking into full consideration the adjustments before noted, and the discussions under the preceding headings "Comparison of general costs" and "Comparison of base costs," it is the opinion of the commission that full justice will be done respondent company as to the element of value now under consideration (cost of reproduction) if an amount now be added equal to 5 per cent of such cost of reproduction except as to land, materials and supplies in stock, and cash working capital; first, including, however, the adjustments hereinbefore made thereto. Such an addition is therefore now made in the amount of $480,898.46, as set forth in the following Table 39:

TABLE 39.

5 Per Cent Adjustment to Cost of Reproduction.

		Adjusted reproduction cost.	Adjusted reproduction cost less accrued depreciation.
Grand totals of Table 38		$10,334,330.32	$8,451,105.68
Deduct:			
E-300, land (Table 38)	$452,468.00		
Materials and supplies	128,893.08		
Working capital	135,000.00		
		716,361.08	716,361.08
Balance		9,617,969.24	7,734,744.60
5 per cent to be added		480,898.46	386,737.23

Materials and Supplies.

As has already been noted in connection with this subject as pertaining to historical cost, the commission is of the opinion that the amount included in the cost of reproduction report of commission's engineers, namely, $128,893.08, is reasonable and fair. This amount was not derived by detailed inventory and reproduction estimate, as, without the co-peration of the company, it was rather impractical to make such inventory. The amount represents the actual ledger balance for materials and supplies as of June 30, 1914. It is believed, after review, that this amount is fairly representative of the normal amount "on hand."

The company claims a larger amount, but without sufficient evi-

dence to support their claim. Almert includes in his account 8 (Table 18) arcs, transformers, and meters in stock (as well as stores and supplies), while these items are included in the Pillsbury report under the respective accounts 328, 323, and 325. The claims of the company, as per Almert Exhibit 10, that tools outside of storerooms, instruments at temporary locations, and portions of omitted spare parts at substations were not included, have already been
1209 met in the foregoing discussion under the head "Alleged errors and omissions" by full allowance by the commission of such claims.

Cash Working Capital.

Working capital, other than that represented by materials and supplies, was included in the commission's engineer's report in the amount of $135,000. This is discussed under the head "Materials and supplies and cash working capital" in connection with historical cost, and, for the reasons there given, the commission concludes that the amount is fair.

The company claimed that an allowance should be made for capital invested in auxiliary electrical devices, such as irons, ranges, vacuum cleaners, etc., which it keeps on hand for sale (to its customers) on either cash or long-term payments.

The commission believes that while this is a perfectly legitimate enterprise for an electrical corporation, the money invested therein should not be made the basis for a perpetual charge against the company's customers, many of whom do not avail themselves of the privilege. Such side lines of business should be self-supporting, or if operated at a loss, should be considered as an operating expense. The company presented no definite amount to cover this claim, and no allowance is made therefor by the commission.

The commission finds that $135,000 should be included in the reproduction cost for cash working capital.

Preliminary Expenses Prior to Construction.

The company presented, in Mr. Almert's report and testimony and by the testimony of other witnesses, claims for allowance for preliminary organization expense and other expenses prior to construction. It is recognized by the commission that a fair allowance for legitimate expenses of this nature in connection with cost of reproduction is proper. As testified to by Witness Pillsbury, this item was excluded from his cost of reproduction, not because no such item was intended to be allowed, but because the instructions were that this matter should be left for independent consideration by the commission.

Almert includes in his report:

301-335, "Legal organization and franchise expense"....	$262,542
333-F, "Preorganization expense".....	25,000
333-D, "Financing, expense of negotiating only".....	60,000
Sum	347,542

The second item, as stated in Almert report (p. 1231), relates to preliminary engineering surveys, reports, and estimates of engineers as to the cost and feasibility (earnings) of the project, etc. This item, as to its nature, is proper to include. The first Almert item in the amount of $262,542 includes, as stated, legal expenses. The Pillsbury report includes legal expenses "for and during construction" at $65,000, as per Table 28 and as per Pillsbury testimony (p. 2037). The Almert allowance of $262,542 probably includes legal expenses of other nature, but for purposes of comparison
1210 we may concede the balance, after deducting the Pillsbury estimate of $65,000, namely, $197,542, as representing Almert's claim for expenditures other than legal. Almert states in his report (p. 1227) that these allowances include estimates of moneys "spent for the purpose of securing favorable action and for expediting action both through publicity campaigns, entertaining those whose influence would be helpful, and by indirect and sometimes even by direct contributions of cash, stock, and other considerations for assistance." This idea is further amplified in Almert's cross-examination. (Testimony, pp. 3784-3803.)

The commission, however broadly it tries to review the subject, can not countenance the inclusion of allowances for all such purposes. As stated, however, the commission is of the opinion that preorganization expense, both engineering and commercial, is logical and proper in connection with a theoretical cost of reproduction predicated upon reasonable and just hypotheses.

The company's witness, F. B. H. Paine (testimony, p. 5551 and Paine Exhibit C), introduced an allowance for "expense preliminary to the construction and expense of developing the project" (not development of the business) calculated as 2 per cent of the estimated cost of reproduction, including "base" plus "general costs" plus materials and supplies and working capital.

The commission has before it in other cases claims for similar expenses, including in one the testimony of the same witness. Paine, who in that case uses 2½ per cent, and includes in the amount upon which he bases his percentage an item for "cost of attaching the business." In the case of the respondent company, witness Paine does not include this last item before deriving his preliminary organization expense.

The third Almert item, according to Almert report, pages 1228 and 1229, and Almert's testimony, pages 3630-3634, includes: (1) costs of printing, prospectuses, stock certificates, advertising, etc.; (2) engineering reports and estimates to bankers, etc.; and (3) services of trust officers and attorneys in connection with preparation of mortgage and deed of trust, etc.

The commission, after full consideration of the evidence in this case and of allowances by other commissions and courts, is of the opinion that $250,000 is a reasonable and sufficient amount to allow for preliminary expenses prior to construction of a utility whose reproduction cost is based upon the theory developed in this case; this allowance, including preliminary engineering surveys, reports and estimates, costs of printing and engraving, prospectuses, stock certificates, advertising, attorneys' and trust officers' fees in connection with mortgage deed, negotiating of bond issue, etc., which latter costs, as noted, Almert includes in his "Financing, expense of negotiating only."

Allowance is therefore hereby made, including both engineering and legal and commercial preorganization expense, in the amount of $250,000.

Preliminary Operation.

The Almert report includes an allowance of $50,000 for preliminary operation, applying according to that report, page 1223, and the testimony, to expenses in connection with the trial
1211 operation of the plant and equipment, and for tests, fuel, operating labor, and expert service during such tri-ls, etc. In the report of the commission's engineers no such allowance was made as a specific individual item, although the report includes in its various costs allowances of an equivalent nature, which, however, can not now readily be summarized for comparison and which, according to witness Pillsbury, are not in total the full equivalent. Such costs are incurred in connection with the production of such a property, and the commission concludes that it will be fair, under the circumstances, to allow $25,000 additional therefor.

Great Falls Power Site.

The Almert report includes Great Falls water-power site, at $1,000,000, and the company claims that this site should be included at this amount.

In its petition to be considered a party respondent to this cause the Washington Railway & Electric Co. (pp. 15 to 30 of testimony) prays that this commission consider the evidence introduced before it "In the matter of the joint manufacture and sale of electric current by the Washington Railway & Electric Co. and the Potomac Electric Power Co., formal case No. 40."

This investigation disclosed the following facts:

That the Washington Railway & Electric Co. acquired 3,334 shares of stock in the Great Falls Power Co. on November 26, 1902, and that for nearly 10 years the railway company retained these shares. No plant was built by the Great Falls Power Co., and the property was absolutely nonproductive. On May 27, 1912, the Washington Railway & Electric Co. entered into a contract with the Potomac Electric Power Co. setting forth an agreement between the two companies whereby the railway company pledged itself within

one year to convey to the power company the two-thirds interest in the Great Falls power site in consideration of 10,000 shares of the capital stock of the power company to be issued and delivered to the railway company at the time of the execution of the contract. It was further agreed that the railway company would assign to the United States Mortgage & Trust Co. as trustee 3,334 shares of the capital stock of the Great Falls Power Co., a Virginia corporation, as security for the faithful performance of the contract on the part of the railway company. The contract further provides that upon the failure of the railway company to comply with the terms of the contract within the period named, the power company may return the 3,334 shares of stock of the Great Falls Power Co. and require the surrender by the railway company of the 10,000 shares of the Potomac Electric Power Co., or require the trust company to dispose of the 3,334 shares of the Great Falls Power Co. for the benefit of the Potomac Electric Power Co., as that company may elect. On May 21, 1913, the time of the contract was by mutual agreement extended one year.

The testimony shows, however, that the 10,000 shares of its stock have been delivered by the power company to the railway company, and that since such delivery the railway company has received $105,000 in dividends from the stock. These shares were an additional issue of the Potomac Electric Power Co., made for the
1212 purpose of the transfer, and the capital stock of the power company was increased from $5,000,000 to $6,000,000 on account thereof. What consideration did the power company receive for such additional stock? Nothing but the obligation of the railway company to transfer to it within a certain time title to two-thirds interest in a power site, guaranteed by the deposit with a trustee of 3,334 shares of stock, in the Great Falls Power Co., for which the railway company paid in 1902 $425,000 in cash, and which has been nonproductive to date.

But there is still another and more important point to be considered in connection with this transaction. The contract proposes that the railway company transfer an inert piece of property for its rights in which it paid $425,000 in cash, and which for a period of 10 years had not been a profitable investment to a subsidiary company, of which it owns all of the stock; and in return, even before the property is actually transferred, receive stock to the par value of $1,000,000, on which it has collected in one year $106,000 in dividends. Furthermore, the testimony in the present case (p. 4419, Dec. 15, 1916), shows that the respondents' title to this site has not yet been perfected, nor final transfer made to the Potomac Electric Power Co., although it has paid $475,000 in dividends on this stock since 1912.

The ability of any corporation owning or controlling the interests of the Great Falls Power Co. in this site to economically develop the water power in the near future is a matter of grave doubt. The report of the Assistant Attorney General, C. Edward Wright, dated February 1, 1909, being Appendix 4 to the report on the water supply of the District of Columbia and water power at Great Falls

(H. R. Doc. No. 1400, 63d Cong., 3d sess.) introduced as evidence in this case (testimony, pp. 5589-90) shows that there are two other owners of rights at Great Falls whose claims present a formidable obstacle to any immediate power development.

The first of these claimants is the Chesapeake & Ohio Canal Co., who have the right as successors of the original "Potomack Company" under the laws of Maryland, 1784, to the perpetual and prior use of water for navigation purposes.

The second claimant, and by far the larger, is the United States, which now owns considerable tracts of land at this site and has constructed a large dam across the Potomac River above the falls, by means of which the District of Columbia obtains its entire water supply. The United States has made several investigations of this site as a possible source of power for its uses in the District of Columbia, and even now has its development under serious consideration.

It is the undivided two-thirds interest of the third claimant to the power rights at Great Falls that is yet to be actually conveyed to the Potomac Electric Power Co. in consideration of the $1,000,000 of stock issued by it in 1912. There are also the owners of the remaining one-third interest of the Great Falls Power Co. to be considered, the value of whose holdings is not known and whose claims would undoubtedly further tend to delay the development of this property. The testimony shows that the purchase of this undivided interest at that time (1912) by the Potomac Electric Power Co. was primarily
for the purpose of forestalling its acquisition by the United
1213 States, although subsequent testimony has been to the effect
that the purchase was for purposes of future development when the price of coal might make it advisable and economical. This latter consideration should be given little weight in the face of the installation in 1916 of a new 30,000 kilowatt steam-turbine unit at the main generating station of the respondent company.

The Potomac Electric Power Co. purchased whatever rights it possesses in this site from the Washington Railway & Electric Co. in 1912, paying therefor $1,000,000 in stock. The Washington Railway & Electric Co. purchased the rights in 1902 from the Great Falls Power Co. for $425,000 in cash.

Although the experts of the company were carefully questioned by members of the commission, they were unable to throw any satisfactory light upon the value of these rights or to give evidence in any way convincing to the commission that this water power could be economically developed for commercial uses.

The commission is of the opinion that this property is not now used and useful for electrical purposes within the District of Columbia, and have therefore stated it separately in the final summary of the reproduction cost (Table 40) at the price paid for in it 1902, viz, $425,000.

Final Adjusted Reproduction Cost of Physical Property.

The foregoing conclusions and resulting adjustments of the commission are embodied in the following Table 40, which also shows

reproduction cost of property outside of the District of Columbia, hereinafter referred to in Table 41.

TABLE 40.

Cost of Reproduction and Cost of Reproduction Less Accrued Depreciation of Physical Property as of July 1, 1914.

[As Finally Adjusted by the Commission.]

	Cost of reproduction, A.	Cost of reproduction less accrued depreciation, B.
Grand totals from Table 38	$10,334,330.32	$8,451,105.68
5 per cent addition as per Table 39	480,898.46	386,737.23
Preliminary expenses prior to construction, added	250,000.00	250,000.00
Preliminary operation, added	25,000.00	25,000.00
Final adjusted totals, physical property within District of Columbia used and useful for electric operations	11,090,228.78	9,112,842.91
Cost of reproduction of physical property without the District of Columbia used and useful for electric operations as per Table 41	487,225.00	
Final adjusted total, within and without the District of Columbia	11,577,453.78	
Property items stated separately as not used and useful:		
Great Falls water power site	$425,000.00	
Parcel 151/21, Graceland Cemetery	160,490.00	
Square 709	24,805.00	
Balance of property not used or useful, from Table 24	16,851.60	
Subtotal, items stated separately	627,146.60	
Grand total	12,204,600.38	

1214 Reproduction Cost of Property Outside District of Columbia.

For the purpose of comparison between the cost of reproduction of used and useful physical property within the District of Columbia and the historical cost as found by the commission, which latter applied to property without as well as within the District, the commission caused to be made under the direction of its engineer, J. Kappeyne, a survey and estimate of the cost of reproduction of the physical property of the respondent company outside of the District, but used and useful for electric operations of the company.

This was introduced in evidence (testimony, pp. 3388-3393) and is summarized in the following table (Table 41):

TABLE 41.

Kappeyne Report, Reproduction Cost of Property for Use and Used Outside of the District of Columbia.

Land	.....
Structures	.....
Power plant and substation equipment	$46,175
Transmission and distribution	365,600
General equipment	200
General costs	75,250
Materials and supplies	.....
Total	487,225

No evidence was introduced by the company tending to prove the inaccuracy of this valuation, the company electing not to cross-examine the commission's witness who made the appraisal.

The commission is of the opinion that the amount stated, namely, $487,225, fairly represents the reproduction cost of this property, but as it relates to property not used nor useful for electrical purposes within the District of Columbia it is set up separately in the final summary (Table 40).

Paving.

The cost of reproduction report of the commission's valuation bureau includes all estimated costs of cutting through and replacing pavements such as would be required in a real construction of the property as of the date of the inventory (July 1, 1914). The report contained the statement, page 21 of bases and conclusions, Part I thereof, "In the performance of the judicial function of determination of 'fair value' or 'just amount,' the exclusion of that portion of the paving (owned by the Government) not paid for by the company should be taken into account." The commission concurs in this view and holds that, in accordance with the trend of court and commission cases and in accordance with the principles of equity, that portion of the paving referred to in the above quotation should form no part of "fair value" as finally found by the commission.

The amount included in the original report of the commission's engineer for all paving (exclusive of general costs) is $494,318. The books of the company show only $209,800 actually charged to capital accounts for paving. (See testimony, p. 2463.) It appears, however, that this charge to capital account is not complete, some of the paving costs, and particularly the costs of cutting then existing pavements, not having been separated from other construction

costs. The commission is convinced that a portion of the
1215 amount $494,318 represents the reproduction cost of relaying pavements over mains and services actually constructed prior to the paving over them. In the absence of conclusive evidence as to the amount thereof, after full consideration of the matter from several angles, and to give the company the benefit of the doubt, the commission makes a deduction of 10 per cent, or $49,431.

House Services.

The report of the commission's engineers on the reproduction cost includes the entire cost of all services operated by the company, whether paid for by themselves or by the individual customer. The practice of the company has been and is now to charg the customer with a part of the service connection, principally when the wires are laid underground. The historical cost reflects only the net amount paid by the company for such services, which accounts in large measure for the difference between the amounts for this class of property in the two reports. The commission is of the opinion that the company should not be allowed to earn a return on that portion of the service not paid for by them, and consideration has therefore been given to this in the determination of the fair value of the company's property.

Intangibles and Cost of Development.

The company presented claims for certain intangibles, in connection with its estimated cost of reproduction. These intangibles are set forth in the Almert report and, as slightly rearranged in accordance with the foregoing discussion, are set up in Table 26, as follows:

333-E. Compensation to conceivers	$650,000
333-G. Brokerage and commissions	700,000
302. Property rights in easements	2,500,000
304. Development cost	2,115,323
	5,965,323

Items 333-D, financing, expense of negotiating only, $60,000; and 301-335, legal, organization (and franchise) expense, $262,542, which in part are of intangible nature, have already been discussed, and the conclusions of the commission in connection therewith hereinbefore set forth.

The four Almert intangible claims first above mentioned will now be considered.

Compensation to Conceivers.—The Almert allowance of $650,000 for compensation to conceivers is claimed by the company as a proper inclusion for conceivers' remuneration and promoters' profit. It would appear that this claim is based upon stock issued to Crosby and Lieb, in the sum of $550,000, for obtaining a loan of $650,000

for the company and for obtaining contracts, the value of which is not even suggested by the company, if indeed they were of any value whatsoever. The company paid $109,750 for discount and commission, or 16.9 per cent, on this loan, which expense would appear to be all that need be incurred to complete the transaction. The Potomac Electric Power Co. is not the company which established and
1216 developed the electric light and power business in the District of Columbia. As indicated in the foregoing history of the company, the old United States Electric Light Co. was really the pioneer in this industry in the District. It was a company that was evolved out of a very small concern with an insignificant plant and service, and its development was slow, cautious, and successful. It is evident that if any sum whatever was paid by it for promotion expenses it was very small, and the probabilities are it was the result of the evolution of a private enterprise of a few individuals who put their money into a comparatively new instrument of quasi-public service. The Potomac Electric Power Co. did not come into existence until 15 years after the United States Electric Light Co. had commenced and developed the electric-lighting industry in the District of Columbia and had passed the development stage, and it was 5 years thereafter before the ownership of these two companies became lodged in the same interest.

It would be most unjust to the public to allow $650,000, or any other appreciable sum, as conceivers' commissions to individuals conceiving something already in existence, the necessity for which had been demonstrated years before they came upon the field of action.

And while it is proper, in connection with estimating cost of reproduction, to conceive of the physical property as nonexistent except for purposes of inventory (for the simple reason that in such reproduction each part must be conceived as reproduced in the same position in space), yet it is indulging in a flight of imagination too ephemeral to be worthy of weight to assume that the reproduction of this great property as of the year 1914 or 1916 takes place under such conditions that the community, having no electric light ng or power facilities, is so ignorant of the advantages thereof that a conceiver of the project of such a plant must be heavily remunerated for this thought and foresight!

The commission concludes that no claim may equitably be allowed in this case in connection with historical cost or cost of reproduction or fair value as a basis for rates.

Brokerage and Commissions.—The Almert report includes and the company argues for an allowance of $700,000 for brokerage and commissions. Almert, in his report, page 1232, says in part:

For the distribution of an amount of securities, the proceeds from the sale of which would net sufficient cash to reproduce the property and business of this company as shown the brokerage and commissions, or syndicate managers' charges, would aggregate approximately $700,000.

The commission has made allowance for cost in connection with negotiating for bond issue, costs of investigations, trust deed, printing,

engraving, etc., in connection therewith as hereinbefore discussed under the heading "Preliminary expenses prior to construction."

Without discussing the equity of the amount of this claim the commission is of the opinion that bond discount constituting a payment for the use of money is in the nature of an interest payment; that it is not "a proper capital charge, but rather an adjustment of the interest rate to the existing market conditions and chargeable to interest account and not capital." The commission is of the opinion that brokerage and bond discount are matters to be considered in connection with, and to be reflected in, the rate of return
1217 allowed; that such costs should be made up out of income by the creation of a sinking fund or reserve sufficient to cover the cost during the life of the bonds, and that therefore such costs should not in equity be considered a part of the cost of reproduction or of the "fair value" to be taken as a base for the fixing of rates. The commission so decides in this case.

Property Rights in Easements.—Almert includes, and the company claims, an allowance of $2,500,000 for "property rights in easements."

Aside from Maryland, where there is a local law relative to easements, there has been, so far as the commission is aware, no valuation for an item of that character in this country in rate cases. There can apparently be no claim for it whatever on the historical-cost theory, since there is no evidence of any cost for these easements. On the reproduction theory it would be necessary to establish that it would cost $2,500,000 to secure such rights. No evidence of that kind has been given. To attempt to show that the rights are worth a certain sum goes entirely outside the theory of either reproduction or actual cost, and attempts to apply a market theory of value, which has little connection with actual cost or reproduction cost, but is primarily based on a capitalization of prospective earnings—which prospective earnings constitutes the very matter fundamentally here in controversy, since the issue in review is that of a fair value as a basis for rates.

The right to occupy the streets and highways of the District with its conduits, poles, and wires is a license or franchise which the company possesses. The actual occupation and use of the streets it claims gives it an easement, and gives to this easement a separate and distinct value. The right to this occupation was granted to the company by Congress without cost to it. The exercise of this right cost the company whatever it may have paid for the labor and material expended in the occupation, together with such other elements of cost as attach to it proportionately in the process of the general construction of the property. It is evident that this right to occupy the streets and its exercise is one of the bases upon which the property of the company can be considered in its entirety as a successful and going concern. It sustains the integrity of the investment, and enables the commission to give a value to the property as a successfully operating and going concern. The value attaching to the franchise and the easement is fully reflected in the cost of reproduction of the property as a whole, when such cost of reproduction is

based upon the conception of the property as a successfully operating entirety, as it is in this case.

In addition to this, it is clearly indicated in the acts of Congress granting these licenses that they were not only not to be separately capitalized but that if they were withdrawn for any purpose such withdrawal would be without compensation. It is interesting to note in this connection that the Washington Gas Light Co., whose occupation of the public streets and highways exceed- that of this company as to extent and duration of occupation, makes no claim for any such separate property right in easements as an element of fair value. The Chesapeake & Potomac Telephone Co., occupying the streets with its conduits, telephone cables, and overhead wires
1218 in a manner very similar to the electric-light company, makes no such claim.

The commission disallows this claim as not having any bearing upon fair value as a basis for rates.

Development Costs.—There remains to be discussed the company's claim for development cost, as set up in the Almert report in the amount of $2,115,323, and the matter of intangibles in general.

So far as the physical property of a utility is concerned, an estimate of the reproduction cost made by one engineer should differ from that of another engineer only when there is disagreement as to the inventory, disagreement as to prices or costs applied, or disagreement as to the program of hypothetical construction. In other words, the work of making an estimate of the amount of money it would require to replace the physical property of a utility is an engineering work, and two capable, disinterested engineers working independently upon the same problem and upon the same reasonable hypotheses should arrive at approximately the same result.

But when it comes to intangible property there is no such agreement and no such clear perception of the problems involved as to make it probable that mere engineering or economic skill and experience would lead at any time to an agreement.

The experts who have testified in this case and in other cases of like character before this commission certainly have not agreed even as to the broad outlines of the problem.

Among the various companies whose property is being valued by this commission and who have been heard in valuation proceedings there is no agreement even as to the nomenclature of the so-called intangibles. It is difficult to find even two witnesses who agree as to the names of the elements of intangible value, much less the amounts.

"Value can not be made by the duplication of titles or the multiplication of names."

No company before this commission has asked for a definite allowance for "franchise value" as a basis for rates. Only one, the respondent, has claimed an allowance for easements, which, however, in this case amounts to practically the same thing. As for the other intangible elements asked to be considered in the reproduction cost estimate, they vary in each different presentation.

For these reasons it is necessary for the commission to carefully examine all claims for intangibles and to allow only what seems to

them to be a reasonable amount to offset what would be the necessary expenses beyond the provision of the bare bones of the plant.

Here enters a question that transcends the mathematical bounds of engineering. It is all very well for an engineer to imagine that a particular plant does not exist for the purpose of inventory, and that it is to be rebuilt as if it never were; but is it permissible to admit the further assumption that this electric light plant to be built under conditions affecting prices and financing prevailing in 1914, should be built in a city of 350,000 persons no one of whom knew what an electric-light plant was for? Is it permissible to admit in a reproduction cost estimate claims for huge amounts that would have to be spent in developing and in attaching business, in this, that, or the other way, which sums were not in fact spent by a company that has existed and does exist?

1219 Doubtful as may be the application of the theory of original cost when books have been badly kept or are such that they can not now be precisely interpreted; more valuable as may be, under such conditions, the reproduction estimate of the physical property when made by competent engineers; when it comes to the matter of intangibles, every claim made under the reproduction cost theory should be subjected to the most searching scrutiny in the fullest light of the historical data available.

The reproduction cost estimate of physical property avails itself of the historical foundation when it accepts the actual property as existent for the purposes of inventory. It is the inventory that ties the hypothetical reproduction to the actually existing physical property. The inventory in itself is historical; it is the history of the life and growth of the enterprise written in terms of construction. There can be no such inventory applying to intangibles, and therefore it is that claims for intangibles in reproduction cost estimates vary so widely. Of course, it is impossible to inventory intangible things, but if intangible things cost money in theory, it ought to be possible to inventory the money that has been spent on intangible things in the past. It would be absurd to limit the hypothesis of the reproduction of the physical property to the bounds of an actual inventory, and then let down all the bars with respect to intangibles, admitting every claim that might find a basis in theory without some insistence upon some method of linking up the hypothetical reproduction with the actual existing facts concerning the life and development of the property. If such facts are not to be found supporting certain very large claims, then it is wise to be extremely careful in considering such claims solely upon the basis of a theory.

That a reproduction cost estimate will throw great light upon the ultimate determination of fair value is a theory to be accepted only if the reproduction cost estimate itself is prepared with great care. Common sense approves the assumption for this purpose that the property is nonexistent except for purpose of inventory, but it insists upon that inventory. Common sense can not approve the assumption that the city which has supported a company that produced such a property is nonexistent, or that its people in 1914 (or 1916) would know nothing of the value of electric energy.

The truth seems to be that driven from the ancient practice of determining value by the capitalization of earnings, a vicious circle broken by the very institution of public regulation, efforts are now being made by piling up intangibles in reproduction cost estimates to effect the same old result—the defeat of efforts to restrict earnings to a fair return upon a fair value of the property used in performing the service. If all such claims for intangibles were allowed to the full, a circle would be legally created which would not differ from the old vicious circle in any degree, except that it would have received the sanction of public authority.

As to development cost, the commission, after full consideration of the evidence, concludes that there is no justification for the large claim of the company. Such a claim has not been justified by evidence of corresponding early losses and no such claim purely as a theoretical hypothesis of reproduction of the business can be entertained. The commission, however, is of the opinion that
1220 some allowance should be made for this element of value, though, largely of an intangible nature, and constituting a legitimate cost of development not covered in this case by the historical cost element or cost of reproduction element hereinbefore adopted.

Depreciation.

The cost of reproduction report of the commission's engineers includes the determination of accrued depreciation on the so-called "straight-line age, life basis" and of annual depreciation amounts and percentages calculated and set forth on two bases: First, the straight-line age, life basis corresponding to and commensurate with the calculations of accrued depreciation; and, second, on the "4 per cent sinking-fund basis."

The "lives" upon which the calculations were based were the useful or service lives of the respective individual property items as estimated by the commission's engineers. These estimates were not made from so-called life or mortuary tables, which at this stage of the art are far from authoritative even as to the general averages which they represent and which do not directly apply to the specific property items of the various properties in connection with which they may be used. The lives were estimated in this case specifically with respect to the actual property items after thorough inspection in the field and after full consideration of the mode of use and maintenance, the growth of the business and property of the company, the state of the art, and other relevant considerations. The useful lives so estimated take into account both physical and functional causes of useful life termination.

The basis of depreciation is adopted and as set forth in the report has been quoted in full in this opinion in connection with cost of reproduction, and was further explained by Witness Pillsbury. (Testimony, pp. 288-290, 850-854, 875-885, 1933-1988, 2296-2294.)

The work in connection with this matter of depreciation was carried out with unusual detail and care by the commission's engineers,

as the report itself indicates. No evidence has been introduced by the respondent company to controvert the ages, lives, or residual values, or the depreciation percentages and amounts resulting therefrom as set forth in the report. In fact, the company's witness Almert, testifying as to Pillsbury's rates of depreciation, said (testimony, p. 4131):

I have looked them over and know what has been used in other cases, and they are approximately fair.

The testimony introduced by the company and the arguments of its counsel are rather directed to the claim that no deduction for accrued depreciation should be made, for the reason that the property is in first-class service condition, with no appreciable deferred maintenance or lack of required repairs. Such first-class physical or service condition of the property is not denied; in fact, it was testified to by Witness Pillsbury. (Testimony, pp. 2286-2288.) As clearly stated in the second paragraph, under the heading "depreciation" of basis and conclusions, hereinbefore quoted from the commission engineer's report, accrued depreciation, as set forth in that report,

does not indicate nor imply corresponding (nor any particu-
1221 lar) physical deterioration, loss of efficiency, or loss of present service ability, but does indicate corresponding loss with respect to total service ability, or potential service capability, through loss of proportional part of service life.

It is an incontestable fact that all parts of the physical property other than land do have useful lives, however difficult it may be to estimate such lives. The items of property do expire in time, and require renewal in like or other kinds. When each item of property is installed new it has a certain total or potential service capability by reason of which it is a valuable adjunct to the property. As its life expires through age, irrespective of the fact that it may still be rendering as satisfactory and as efficient service as before, a portion of its total potential service ability correspondingly expires, so that to that extent the item is less desirable to a prospective purchaser of the property than as though the item were new.

Were fair value being determined in this case as a basis for purchase, the commission is of the opinion that there would be no question in law or in equity but that accrued depreciation, as determined by its engineers, should be deducted. The commission, however, is here finding fair value as a basis for rates. What may be fair or not to a purchaser, either private or public, is not now under review. The relationship of the matter of accrued depreciation to the commission's final finding of fair value must, therefore, be from the standpoint of equity as between the rate payers and the company. The question now involved is how and to what extent is the rate payer interested in the accrued depreciation of the company's physical property. Briefly, the rate payer is interested, and has the right to be interested, in the quality, extent, and continuity of service rendered and in the fairness of the rates charged therefor. The property being to all intents and purposes devoid of deferred maintenance and in first-class service condition, the interests of the rate payer as to present

quality of service, so far as the matter of depreciation is concerned, are satisfied.

The extent of service depends upon extent and growth of property, another matter entirely. The continuity of service depends, among other considerations, on the maintenance of the property in first-class condition, including renewal of the property items as their service lives expire. If the company meets this obligation, which constitutes a fundamental duty toward the public of a public utility, the interests of the rate payers are satisfied as to this point.

We then finally have the interest of the rate payers in the fairness of the rates. Now, it is no longer a matter of controversy that public utilities must collect from the rate payers in the rates charged, moneys for the purpose of making the necessary renewals or replacements as the normal useful lives of the physical property items expire, so as to provide the continuity of service before referred to. The gradual exhaustion of useful lives of the respective property items requiring their ultimate renewal, one by one or in groups, as the case may be, constitutes a cost of production of the service in exactly the same way that the consumption of coal in the furnaces of the boiler plant constitutes a cost of production, excepting that in the former case the consumption is at a much slower rate than in the latter. This fact as stated is, in the opinion of the commission, no longer in controversy. The rate payers having to provide for this con-
1222 sumption of property are vitally interested in the amounts included in their rates for the purpose, if such amounts may logically vary under different equitable methods. Now, in the first place, there are, broadly, two ways in which moneys may be considered to be collected in rates for the purpose of such property renewals:

1. The renewals as made each year may be paid for out of the moneys collected for the purpose in the rates of that year.

2. The moneys as collected in the rates of each year for the purpose of property renewals may not be predicated on the renewals of the respective year, as in 1, but such that, together with similar amounts from other years (and with or without interest accretions), the renewals of succeeding years may be made as required.

Method 1 is the so-called replacement method. While it may be logically applied to a long steam railroad track system, for instance, where, after the property has aged somewhat, renewals year by year become quite uniform, this method does not apply in toto to public utilities such as the one here under consideration. It does not apply in toto because of the great lack of uniformity from year to year in the amounts represented by expiring property items. Required renewals may be very heavy one year and very light the next, so that method 2, in part at least, becomes an absolute necessity in order that a reserve for future heavy renewals may be created

Method 2 may now be further resolved broadly into two classifications, namely:

A. The amounts to compensate for property consumption and renewal thereof as collected in the rates may be such that, without any additions or interest accretions, such amounts will equal the values of the corresponding expiring property items as they expire.

B. The amounts to compensate for property consumption and renewal thereof as collected in the rates may be lesser amounts than required by A—such that additions thereto by interest accretions or the equivalent are necessary in order that the full amounts corresponding to expiring property items may be realized.

Basis A is the so-called straight-line method as used by the commission's engineers in estimating accrued depreciation and the corresponding "annual depreciation amounts" and percentages of the property under consideration, as before explained.

Basis B may be applied in various ways, depending upon the manner and rate of the added interest accretions or equivalent. The commission's engineers, as explained in the report, and hereinbefore quoted and as testified by witness Pillsbury (Testimony, pp. 879-881), calculated the annual annuity on the 4 per cent sinking-fund basis to provide for property renewals. This constitutes a basis B, frequently adopted. Under this method the same ages and lives were used as with the straight-line determinations, the interest accretions being considered equivalent to 4 per cent compounded.

Since basis B results, as stated, in lesser amounts included in the rates to compensate for property consumption through use than the amounts required by basis A, fairness to rate payers as between the two bases is a matter of concern. Obviously if the "fair value," or amount upon which the fair rate of return is calculated, is made the same in either case, the rate payers would be materially benefited by basis B. But the amounts should not be the same. Under
1223 basis A the rate payers are refunding capital to the company commensurate with the consumption of property through use. No additions or interest increments are required. The company may invest the respective amounts in its own property or otherwise. The installments collected in the rates must be considered as immediate final payments to the investors corresponding to portions of their investment in respect to which the investors should have no further claims upon the rate payers. Such moneys are refunded, and corresponding deductions should be made from capital account.

Under basis B the depreciation installments are collected on the annuity or sinking-fund basis, so that the capital represented by any expiring-property item is not fully satisfied until the fund as to such item has accumulated with interest for the term of the annuity. Such installments may be invested in the property of the company, but the obligation is upon the company to accumulate the required increments in addition to such allotments. Under such conditions, the depreciation allotments, collected in the rates, do not constitute refund of capital, but rather payments made solely for the purpose of enabling the company to maintain its investment intact.

Under this basis, no capital being refunded, but the investment always being maintained intact and the rate payers paying the least amount which will maintain the investment, no deductions from capital account should be made in arriving at a base for rates.

Under basis A, capital being refunded at the same average rate as corresponding consumption of property, rates should be based on capital investment less such refunds, or, in other words, the elements

of fair value, actual cost, and cost of reproduction should be reduced accordingly. This is the basis of accrued depreciation estimated by straight-line age, life method as set up in connection with cost of reproduction by the commission's engineers.

In the opinion of the commission, the matter of accrued depreciation and deduction therefor, if any, can not be justly settled independently of the matter of the amounts which the rate payers annually have paid and are paying (in the rates charged) because of depreciation. The two are in equity inseparably interlinked.

If it could now be shown definitely that the company has, throughout the life to date of its present property, collected from the rate payers amounts corresponding to basis B only, then the commission would conclude that, in equity, no deduction for accrued depreciation should be made in this case, and that rates should now include depreciation reserve annuities on the 4 per cent sinking-fund basis as worked out by its engineers and presented in evidence, or the fair equivalent thereof. But there is no such evidence.

On the other hand, if it could now be shown definitely that the company has, throughout the life to date of its present property, collected from the rate payers amounts as depreciation allowances corresponding to basis A (over and above allowable operating expenses and justifiable return), then the commission would conclude that in equity full deductions should be made from the elements, actual cost and cost of reproduction, on the basis as calculated (as accrued depreciation) by the commission's engineers. But the evidence that such has been the case is not conclusive as to these entire amounts. To determine this question definitely now requires a study
of past fair values, past operating expenses, including repairs
1224 and maintenance, and past rates of return, having in mind
the early hazards of the business and the question of the rights of the investors to those early returns, matters always difficult of equitable determination. In this case the question is still further complicated by the fact that for many years the rates have been limited by congressional acts as hereinbefore noted under the section entitled "Regulation by congressional enactment."

The law as laid down in prevailing cases (Knoxville *v.* Knoxville Water Co., 212 U. S., 1; the Minnesota rate cases, 230 U. S., 352; Des Moines Gas Co. *v.* Des Moines, 238 U. S.,153; Kings County Lighting Co. *v.* Willcox, 210 N. Y., 479) puts the burden upon the company of having collected, in past rates, depreciation allowances to compensate for property consumption through use, and prescribes the deduction of accrued depreciation now as a basis for rates, but the law does not prescribe the method which the company should have followed nor the amount for depreciation which should now be deducted.

Cost of reproduction less accrued depreciation as estimated by commission's engineers on straight line, age life basis, as per Table 12 hereof, is in the amount of $8,127,342.92 or 81.56 per cent of corresponding cost of reproduction. By subsequent adjustments to cost of reproduction by Pillsbury and by the commission, cost of repro-

duction less accrued depreciation, as per Table 41, finally was found as $9,112,842.91 or 82.17 per cent of corresponding finally adjusted cost of reproduction (Table 40).

Applying this same final percentage (as fairly representative in total of corresponding depreciation calculations as to the same property) to historical cost in the amount of $9,212,513 as per Table 11, historical cost less corresponding accrued depreciation may be considered as $7,569,992.

These calculated depreciation amounts are summarized in the following Table 42:

TABLE 42.

Accrued Depreciation.

1. Cost of reproduction as per Table 40	$11,090,228.78
Cost of reproduction less accrued depreciation as per Table 40	9,112,842.91
Accrued depreciation	1,977,385.87
2. Historical cost as per Table 11	9,212,513.09
Historical cost less accrued depreciation as above.	7,569,922.00
Accrued depreciation	1,642,591.09

Having carefully considered all the evidence in this case, that of other cases pending before the commission and the opinions of other commissions and courts, the commission finds that these amounts for accrued depreciation might be proper to deduct in a purchase case, but that there is no conclusive evidence to show that these full amounts have been contributed by the rate payers in the past, in addition to proper operating expenses and justifiable return, and that deductions for accrued depreciation should be made in this case in materially lesser amounts than as shown in above table (42). See section "Fair value."

1225 Additions July 1, 1914, to December 31, 1916.

Commission's accounting staff has ascertained from the books of the company the net additions to property subsequent to July 1, 1914, and prior to December 31, 1916. These are as shown in the following Table No. 43:

TABLE 43.

Additions to Capital Accounts.

[July 1, 1914, to Dec. 31, 1916.]

I. C. C. account No.	Classification.	Amount.
E–300	Land devoted to electric operations	$42,085.13
E–305	General structures	80,485.37
E–306	General equipment	12,354.23
E–308	Power-plant buildings	45,398.13
E–309	Furnaces, boilers, and accessories	18,608.90
E–310	Steam prime movers	131,053.92
E–314	Electric generators	56,154.65
E–315	Accessory electric-power equipment	34,248.78
E–316	Miscellaneous power-plant equipment	569.68
E–317	Substation buildings	.....
E–318	Substation equipment	95,216.56
E–319	Poles and fixtures	28,324.43
E–320	Underground conduits	122,021.15
E–321	Transmission system	42,281.95
E–322	Distribution system	142,082.30
E–323	Line transformers and devices	25,453.62
E–324	Electric services	97,355.06
E–325	Electric meters	69,969.15
E–326	Electric meter installation	.....
E–327	Street and park lighting system	3,402.26
E-328	Commercial arc lamps	*7.453.05
E–329	Glower lamps	.....
E–331	Electric tools and implements	1,013.22
E–332	Electric laboratory equipment	918.42
E–334	Engineering and superintendence	11,797.02
E–336	Injuries during construction	2,905.68
	Total	1,056,246.56
	Written off in respect to equipment sold or abandoned	*75,076.13
	Grand total	981,170.43

Items marked * are credits (deducted).

Fair Value.

Paragraph 6 of the Public Utilities Commission law provides for the ascertainment by the commission as soon and as nearly as practicable the amount of money expended in the construction and equipment of every public utility, etc., and to replace all of its physical properties, the amount of its outstanding stocks, bonds, etc., and the

consideration therefor, and other information for the benefit of the commission and the public, and there is no doubt that it was the intention of Congress that such parts of the information so to be obtained as constitute proper elements in determining the "fair value" of the properties of the utility should be considered by the commission. Whatever may be the real purpose of paragraph 6, there is no question that in valuing the property of the company actually used and useful for the convenience of the public at the fair value thereof at the time of the valuation, as prescribed by paragraph 7, the commission is called upon to take into consideration not only those matters and things mentioned in paragraph 6 which are entitled to weight in such valuation, but all other facts
1226 and circumstances which the courts have determined or which experience has shown should be considered in determining such "fair value."

It being the duty of the commission under paragraph 7 to value the property of this company actually used and useful for the convenience of the public at the "fair value" thereof at the time of said valuation, it becomes necessary to determine, as nearly as possible, just what the law means by the term "fair value."

In this connection reference is made to a quotation from a report made in 1913 by the committee on valuation of the National Association of Railway Commissioners (report 25th annual convention, p. 264):

The situation would be greatly simplified and many of the problems which have aroused such discussion could be dismissed if the courts had adopted, or were to substitute, the word "amount" for "value." It is true that "amount" has not a definite or positive meaning, but the word "value" has been robbed of its ordinary meaning and has been used in so many different ways that it is not of much assistance in solving the problem of the reasonableness of a given rate. The Supreme Court of the United States has repeatedly announced that no one factor is determinative, but that various factors must be considered. In certain cases, counsel have argued that cost to reproduce new should be the only principle to be followed, and that the rate should allow a fair return upon the reproduction cost of all property. Likewise, original cost has been urged as the only fair standard. Both standards have been recognized as deserving consideration, but each has been repudiated by the highest courts as the sole standard. If, therefore, each case must be considered upon its merits, and if a number of factors are to be considered and a decision based upon all, it follows that a general term such as "amount," would be much more satisfactory and as full of meaning as the word "value," the ordinary meaning of which is not accepted, and as to which an explanation and apology must be made whenever it is used.

The use by the courts and commissions in rate cases of the expressions that public-service corporations are entitled to "a reasonable return upon the fair value of their property" or "a reasonable

return upon the reasonable value of their property," and similar pronouncements, and the methods adopted by the different commissions and courts in arriving at this fair or reasonable value, clearly indicate that the object and purpose of every valuation upon which rates are to be based is an ascertainment of but one thing—not what the property is worth as an income-producing instrumentality, not for what it would sell or could be bought, not its worth because of its being a monopoly or the holder of rights, easements, franchises, privileges, and benefits accorded it over others to enable it to perform its public duty, but a determined amount, an ascertained and fixed sum, upon which the owners may earn a fair and reasonable return. The sum so arrived at should be one upon which a return may be allowed which will be fair to the investor who has directed his energies and devoted his substance to the creation of this instrumentality, and fair and just likewise to the consumer who under modern conditions is compelled to use the product of the utility in his daily business, social, and domestic life.

If the word "amount" is substituted in place of the word "value" in paragraph 7 of the public-utilities law, and, in the judgment of the commission, such as substitution not only does no violence to the word "value" but gives to it a meaning which Congress intended it should convey, it would follow that it is the duty of this commission to ascertain the fair amount which should represent a just basis for rates of this particular utility as of the time so determined.

1227 If this view is taken, the determination of fair value becomes the determination of that just and equitable amount upon which, under all the facts, circumstances, and conditions of the utilities' construction up to the time of valuation, the return allowed to the utility should be computed. This view has been sustained in two cases, which, in the judgment of the commission, correctly state the law upon the subject.

In the case of Buffalo Gas Co. (Comm. Leaflets, vol. 4, p. 319 et seq., first dist. New York) the commission, after weighing those elements which should be taken into consideration in arriving at that fair value upon which it would be just and equitable to compute a proper return to the company, said:

The foregoing considerations point with almost irresistible force to the conclusion that what is called the fixing of the value of the property in the public service for the purpose of rate making is not a fixing of value in any proper sense of that word as it is correctly used in our language. It is a determination of what under all the facts and circumstances of the case is a just and equitable amount upon which the return allowed to the corporation is to be computed.

In the Bay State Rate case (P. U. R. Anotated, vol. 1916 F, No. 2, pp. 232, 233) the Massachusetts Public Service Commission in effect adopted the principle laid down by the New York Public Service Commission in the case quoted above and in other cases in these words:

It is hardly too much to say, indeed, as the New York Public Service Commission has said, that the determination of "fair value" as the courts use the expression is "a determination of what under

all the facts and circumstances of the case is a just and equitable amount upon which the return allowed to the corporation is to be computed." (Attica Water, Gas & E. Co. v. Alden-Batavia Natural Gas Co., 3 P. S. C. R., 2d Dist. N. Y., 533, p. 644.)

In this connection Chairman Stevens, of the New York Public Service Commission for the second district, has epitomized the difference in the character of the inquiry in purchase cases and in rate cases in the case of Fuhrmann v. Cataract Power & Conduit Co. (3 P. S. C., 2d dist. N. Y., 656) in the following words:

In purchase cases the inquiry is, What is the exchange value of the plant? What is its earning power, present and prospective? And upon the amount of that earning power depends the determination in the case.

In rate cases the question in determining the value is not how much has been or can be got out of the property, but how much has been put into it, in order that from that fact it may be determined how much may be reasonably taken out of it in the way of net income.

The public service commission of the State of Washington, in the case of Public Service Commission v. Pacific Telephone & Telegraph Co., decided April 25, 1916, and found in P. U. R., 1916 D, pp. 948–960, reaches the same conclusion as that arrived at by the New York, Massachusetts, and other commissions, but instead of using the words "fair value" as defining the "amount" upon which under all the circumstances a return may be equitably and justly computed adopts instead the words "rate base" as indicating what the law means by "fair value." The commission says:

Respondent company also vigorously attacks the fair value theory as a basis for rate making. It will be conceded since the amendment of our statute eliminating the valuation of the commission as a basis for taxation, that the only practical reason for valuation under the law of this State is the establishment of fair, just, and reasonable rates and practices. The commission, unfortunately, has no jurisdiction over the issuance of securities, so that for all practical
1228 purposes the only good to be derived from valuation is to prevent unjust and unreasonable charges to the public.

Speaking of value as a basis for rates, Justice Hughes, in the "Minnesota Rate Cases," supra, says: "In determining whether that right (right to receive just compensation) has been denied, each case must rest upon its special facts, but the general principles which are applicable in a case of this character have been set forth in the decisions. (1) The basis of calculation is the 'fair value of the property' used for the convenience of the public. * * * (2) The ascertainment of that value is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts."

Justice Harlan, in Smyth v. Ames (169 U. S., 546; 42 L. ed., 849; 18 Sup. Ct. Rep., 418), said: "How such compensation may be ascertained, and what are the necessary elements in such an inquiry, will always be an embarrassing question."

Our attention is called to the fact that value is a resultant, not a

premise. Value is defined by Webster to be the "property or aggregate properties of a thing by which it is rendered useful or desirable." A utility is rendered useful or desirable to the owners thereof by reason of the return it will bring to its owners in the way of net profits. If we take this definition of the term "value" and make such value the basis for rate making each time we increase the return we increase the desirableness of the property or properties, and on the other hand if we decrease the return, we decrease that which makes the thing desirable; and so, if we decrease the return we decrease the value, and if we increase the return we increase the value. Value is a shifting, variable thing depending upon many factors—the money markets, shifting populations, demand, competition, politics, weather conditions, taxes—the varied opinions of men and the rates themselves all have to do with the rise and fall of values. To say that rates are to be based upon the value of the property, using the term in its usual and ordinary sense, *it* to say that rates shall be based upon one premise to-day, another to-morrow. So, we must conclude that when the courts said that rates were to be based upon "fair value," they could not have meant to use the word "value" in the sense in which the word is ordinarily used and understood.

In this connection the Maryland Public Service Commission (In re C. & P. Tele. Co., P. U. R., 1916, C. 946) says:

When we speak ordinarily of "value" we have in our mind a more or less definite conception of the kind of value we mean. In one case it is exchange value, in another it is market value, in another it is service value, in another it is functional value, in another it is value for taxation, and in another it may be the value which property has in a case involving the exercise of the power of eminent domain. Each of these several conceptions of value involved a different idea and a different meaning from that of any other conception of value.

And so when we speak of "fair value" in a rate-making case we find we must of necessity acquire an entirely new and distinct conception of this term "value." It is not a composite of all other values, nor is it of necessity merely a modification of any of the foregoing conceptions of value, any more than a newly discovered star in the firmament is a composite of all the other stars in the firmament or a modification of any one of the same, but it is an entirely new and distinct "value." It may in some respects partake of the characteristics of some other values, or of all other values, but nevertheless it is a conception of value for a different purpose and is as readily susceptible of ascertainment independently of any other particular value, as such other particular value is susceptible of ascertainment independently of it.

The purpose of the ascertainment of any particular value can never be lost sight of in determining what that value is. Hence, when we know that the purpose of ascertaining the "fair value" of the property of a public utility is to enable the state to fix rates for service, it would be illogical in the extreme to adopt as to the standard of such "fair value" some other value the purpose of which is not to fix rates for service, but is based upon some entirely different and possibly contradictory consideration. * * * In every case we

would find that the final and controlling conception of value must of necessity depend upon the end or aim in view of one or both the contracting parties.

And so in the case of ascertaining the "fair value" of the property of a public utility. Its purpose is the fixing of rates—rates which shall be fair both to the public and to the utility. And if
1229 the rates are to be fair, it must logically follow that the value which is to be used as the basis of those rates must be fair and must at all times be predicated upon that ultimate use which is to be made of the same.

In the opinion of the commission the words "fair value" as used in a valuation for the purpose of rate making, must be entirely dissociated from the commercial meaning of the word "value," and must be held to mean that just and equitable amount which under all the circumstances of the case will constitute a base upon which the return fairly allowed to the utility may be justly computed. The amount of the rate should be such as will yield the fair return calculated in percentage on such rate base.

It then becomes of paramount importance to determine the content of the rate base, or the amount or "fair value" which, under all the circumstances, should constitute the basis upon which the return to the utility should be computed; and in this connection it is important to consider the conditions under which the original and subsequent investments were made by those establishing and conducting public utilities.

It is fair to assume that as a general rule those who have established public utilities did so in the expectation of a reasonable return on their investment sufficient to compensate them for their efforts and outlay. They necessarily assumed that they would be able and would be permitted to receive for their product, whether a thing or a service, an amount equal to actual cost of production, i. e., operating expenses, depreciation and interest, and reasonable profits on actual investment honestly and prudently made. It is probably correct to say that the implied understanding between the public utility and the public growing out of the common-law duty of the one and the common-law rights of the other was no more definite than that the service would be supplied to the public at the cost of production, and that the cost of production as here used meant the actual cost of producing the thing or service and a reasonable profit. Certainly, since the decision of the Supreme Court of the United States in 1877, in the Munn case, it could not have been considered that any public utility, whether in the nature of a monopoly or not, was entitled to earn, as against the public, unreasonable or monopoly profits.

Because of inadequate and insufficient records and the inaccuracy and unscientific method of bookkeeping employed, especially before the Interstate Commerce Commission classification of accounts came into common use, it has generally been found virtually impossible precisely to ascertain the original cost of the property of the older public utilities. Likewise the value of a utility property, as indicated by the amount and market value of its stocks and bonds, and

as indicated by its earning capacity, has depended so largely upon rates which have been enforced from time to time as to make these evidences of value of little, if any, weight in connection with the determination of "fair value" or just amount as a basis for rate making. The cost of reproduction is susceptible of a reasonably accurate scientific estimate, when based upon a fairly accurate inventory of the property, a reasonable theory of the method and character of the reproduction, and the opinion of competent engineers as to its component parts.

In this case, however, the ascertainment of historical cost has much weight. The books and records of the respondent com-
1230 pany and its principal predecessor are for the most part preserved in excellent condition, and were it not for the hazy conditions surrounding certain early transactions and the absence of a uniform policy of accounting throughout the history of the company, this figure as derived might be considered as more nearly approaching the true fair value. But without being able to clear up all the early history, and without being able completely to analyze the operating accounts of the company, the historical cost may not be accepted as fully determinative.

The reproduction cost estimate, in so far as the physical property is concerned, when made with the care and accuracy which characterizes the commission's engineers' report in this case, and after such adjustments have been made thereto as deemed equitable, under the circumstances, is of much worth and is given decided weight by this commission.

Claims by the company for greater allowances in the reproduction estimate of the physical property were based largely upon the difference in prices created by extraordinary conditions which arose subsequent to July 1, 1914.

The reproduction cost report of the company's witness, Almert, was as of July 1, 1916, with costs speculatively estimated as to that date and the unknown conditions to follow. The principal argument of counsel for the company is that such costs should form the basis of ascertainment of fair value at this time by this commission, and that the commission can not, in law or in equity, now determine fair value as of the date of commission's findings of historical cost and cost of reproduction, respectively, namely, as of July 1, 1914. With this view the commission most decidedly disagrees.

The law requires that the commission shall value the property of each utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation. In entering upon the performance of this duty, the commission was aware of the fact that the making of a valuation which would involve the study of accounts of many years standing and of great intricacy, the inventory of millions of dollars' worth of property of many different kinds and acquired through the process of many years, and the determination of a vast number of prices and price components to be applied to the inventory so made, would require at least a year and doubtless a longer time. It became apparent at once that some date should be fixed as a point about

which the data with reference to the original cost and the cost of reproduction of this property should revolve, and that this date should be fixed as of a time during the inventory such that, with required accuracy, the inventory might be limited to property strictly as existing on that date. July 1, 1914, was recommended by commission's experts as fulfilling this condition. The commission thereupon, in May, 1914, determined that the data as to historical cost and as to cost of reproduction new, less depreciation, and the inventories thereof should be considered as of July 1, 1914, further believing that the date thus fixed was of a time at which prices for labor and material derived in the manner explained in the commission engineer's report and as testified to by Witness Pillsbury, would be neither unduly depressed nor unusually elevated; that a study of unit costs and conditions at this period and for some years
1231 preceding it would result in the ascertainment of the cost of reproduction of the property under fairly normal and representative conditions. The commission believed that a consideration of the historical cost and of reproduction cost and depreciation as of this date, together with the annual reports made by the company to Congress and to this commission, and all other elements entering into the consideration of the fair value of the property would enable the commission as a preliminary matter to determine fair value of the property as of July 1, 1914, and that, using this as a basis, and by addition of all net additional expenditures on property since that date, the commission could fairly and equitably determine the fair value of this property as of a later date more nearly coinciding with the time when the final opinion of the commission should be rendered in accordance with the law.

The commission is still of that opinion.

The European war did not commence until August, 1914. Its effect on the cost of labor and material was first a depression of short duration, since which prices have advanced under this artificial stimulus with such rapidity and to such an extent as to prevent the formation of reliable opinion as to their permanency or future effect upon the industrial and economic situation in this country. Whatever virtue there may be in some inclusion in fair value now of speculative values of the past, which the public may to some extent have been a party to, or may have condoned in part by failure to exercise its authority to the contrary, under what principle of law or equity may purely speculative-cost increments be created and added now under the very eyes of the commission and during the very time of its investigations to find fair value? Whatever war prices the company has been compelled to pay since July 1, 1914, are allowed. They represent investment honestly and prudently made. The property represented by them should therefore not be considered as to what would have been its cost as of July 1, 1914, but must be considered in the final finding of fair value at what it actually did cost. This having been done, the commission feels that no injustice is done to the public and no undue advantage given to the company.

Findings.

The findings of the commission with respect to elements of value to be considered in connection with fair value as a basis for rates as of July 1, 1914, may now be summarized as follows:

1. Historical cost of property within and without the District of Columbia, used and useful for electric operations	$9,212,513.09
2. Cost of reproduction of physical property within the District of Columbia, used and useful for electric operations	11,090,228.78
3. Cost of reproduction of physical property within and without the District of Columbia, used and useful for electric operations (for comparison with No. 1)	11,577,453.78
4. Cost of reproduction of physical property within and without the District of Columbia, excluded by commission as neither used nor useful for electric operations	627,146.60
5. Paving included in Nos. 2 and 3 above, but not owned and not paid for by the company, and therefore to be considered as deduction from No. 2 above, in connection with fair value	49,431.00
6. Accrued depreciation as calculated with respect to historical cost (No. 1)	1,642,591.09
7. Accrued depreciation as estimated with respect to cost of reproduction (No. 2)	1,977,385.87

1232

The commission believes that the above amounts for accrued depreciation might be proper for deduction in case of a finding of value for purchase, but not in full in a valuation as a basis ably lesser amounts should be deducted in this case.

8. Intangibles and cost of development. The Commission finds that some allowance should be made for some such additional elements of value, but that the amounts should be very much less than as claimed by the company.

9. Net additions to property, July 1, 1914, to Dec. 31, 1916, inclusive	981,170.43

In determining the fair value of the property of the respondent company as provided for in paragraph 7 of the act creating the Public Utilities Commission, the commission gives much weight to both the historical cost and the reproduction cost as found above. But neither of them is determinative. Each must be considered in

the light thrown upon the problem by the other, and both must be considered with respect to the important matter of depreciation, and both, and particularly the latter, with respect to cost of development. Then the whole problem must be studied. It has been so studied, in the light of all the testimony adduced in the hearing in this case and of the argument submitted by counsel, both orally and in their briefs. The action of other commissions and of courts in similar cases has been carefully considered by the commission.

After full consideration of all the evidence in this case the commission finds the fair value of the property of the Potomac Electric Power Co. used and useful for the convenience of the public within the District of Columbia, as of July 1, 1914, to be $10,250,000.

As hereinbefore set forth, the commission finds the net additions to investment in respondent company's property from July 1, 1914, to December 31, 1916, inclusive, to be $981,170.43, and therefore further finds the fair value of the property used and useful for the convenience of the public within the District of Columbia, as of December 31, 1916, to be $11,231,170.43.

In reaching the above conclusions the commission has, as to every element of value, considered the company as a going concern in successful operation.

Rates of Depreciation.

Paragraph 16 of the act hereinbefore referred to requires that "the commission shall ascertain and determine what are the proper and adequate rates of depreciation of the several classes of property of each public utility. These rates shall be such as will provide the amounts required over and above the expense of maintenance to keep such property in a state of efficiency corresponding to the progress of the industry."

In the section of this opinion entitled "Depreciation" the matter of annual rates for depreciation on both straight-line and sinking-fund bases was discussed. Table 17 hereof shows annual depreciation rates with respect to each Interstate Commerce Commission classification of property of respondent company as derived by commission's engineers on straight-line basis, and as embodied in the Pillsbury report modified by adjustments subsequently made thereto.

These rates appear under the column headed "Annual depre-
1233 ciation per cent of reproduction cost." Table 16 hereof shows annual depreciation rate in the amount of 1.71 per cent as calculated by the commission's engineers on 4 per cent sinking-fund basis and applying to the physical property of respondent company exclusive of land, materials and supplies in stock, and cash working capital, as set forth in Pillsbury report and modified by subsequent adjustments herein made.

After full consideration of the matter of rates of depreciation, as discussed in the section hereof entitled "Depreciation," the commission finds that the rates to be tentatively adopted in this case shall be the straight-line rates as embodied in Table 17 before referred to, but that after further study of the company's experi-

ence, as shown by its records, these rates at a later date may be somewhat modified so as to lie between straight-line and 4 per cent sinking-fund rates, in reality constituting two portions, one according to the straight-line basis and the other the sinking-fund basis; the first to correspond with such renewals of expiring property as occur fairly uniformly yearly; the second applying to the creation of a reserve for future renewals which, because occurring at infrequent intervals and in amounts materially greater than the moneys annually collected for that depreciation, require the creation of a reserve therefor.

CHARLES W. KUTZ,
LOUIS BROWNLOW,
OLIVER P. NEWMAN,
Commissioners.

1234 The foregoing is a condensed statement of such of the evidence in this case, as, together with the pleadings filed therein and the decree complained of, all of which are to be taken as parts hereof, is deemed essential to a decision of the questions therein, all of which has been prepared in duplicate and signed by the parties thereto by their counsel with the approval of the Justice who presided at the trial, and shows how the various questions arose and were decided, and sets forth so much only of the facts alleged and proved or sought to be proved as are essential to a decision of such questions on appeal in conformity with the provisions of sub-section (*a*) of section 2 of Rule V, as well as of the provisions of section 5 of Rule V of the Court of Appeals of the District of Columbia, but with the right saved to both parties, as well as to the Court, to refer to and examine the original papers for the purpose of curing any error or omission existing herein as heretofore stipulated.

S. R. BOWEN,
JNO. S. BARBOUR,
Counsel for Appellants.
CONRAD H. SYME,
Counsel for Appellees.

Approved:
ASHLEY M. GOULD,
Justice.
Nov. 23, 1920.

Endorsed on cover: District of Columbia Supreme Court. No. 3485. Potomac Electric Power Company, a corporation, et al., appellants, vs. The Public Utilities Commission of the District of Columbia et al. Court of Appeals, District of Columbia. Filed Dec. 17, 1920. Henry W. Hodges, clerk.

Friday, December 24th, A. D. 1920

* * * * * * *

No. 3485.

POTOMAC ELECTRIC POWER CO., &c., et al., Appellants

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, &c., et al.

On consideration of the suggestion of the retirement of Oliver P. Newman, John G. D. Knight, and Louis Brownlow, and the appointment of J. Thilman Hendrick, Mabel T. Boardman, and Charles W. Kutz, as Commissioners of the District of Columbia. It is ordered by the Court that the said J. Thilman Hendrick, Mabel T. Boardman and Charles W. Kutz, Commissioners of the District of Columbia, be and they are hereby made parties appellee in this cause in the place and stead of the said Oliver P. Newman, John G. D. Knight and Louis Brownlow, retired.

Monday, May 2nd, A. D. 1921.

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No. 3485.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, and WASHINGTON RAILWAY AND ELECTRIC COMPANY, a Corporation, Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; J. Thilman Hendrick, Mabel T. Boardman, and Charles W. Kutz, Commissioners of the District of Columbia and as Such Constituting the said Public Utilities Commission of the District of Columbia.

The argument in the above entitled cause was commenced by Mr. Osborne I. Yellott, attorney for the appellants, and was continued by Mr. C. H. Syme, attorney for the appellees.

Tuesday, May 3rd, A. D. 1921.

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No. 3485.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, and WASHINGTON RAILWAY AND ELECTRIC COMPANY, a Corporation, Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; J. Thilman Hendrick, Mabel T. Boardman, and Charles W. Kutz, Commissioners of the District of Columbia and as Such Constituting the said Public Utilities Commission of the District of Columbia.

The argument in the above entitled cause was continued by Messrs. C. H. Syme and F. H. Stephens, attorneys for the appellees, and was concluded by Mr. John S. Barbour, attorney for the appellants.

Court of Appeals of the District of Columbia.

No. 3485.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, and WASHINGTON RAILWAY AND ELECTRIC COMPANY, a Corporation, Appellants,

v.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; J. Thilman Hendrick, Mabel T. Boardman, and Charles W. Kutz, Commissioners of the District of Columbia and as Such Constituting the said Public Utilities Commission of the District of Columbia, Appellees.

Opinion.

Mr. Justice ROBB delivered the opinion of the Court.

This is an appeal from a decree in the Supreme Court of the District dismissing the bill of the Potomac Electric Power Company and the cross bill of the Washington Railway and Electric Company, seeking a review of the findings of the Public Utilities Commission of the District of Columbia as to the value of the property of the Power Company "actually used and useful for the convenience of the public." See Act creating the Public Utilities Commission, 37 Stat., 974.

Paragraph 7 of the Act provides that "the commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public

at the fair value thereof at the time of said valuation," and paragraph 9 authorizes the commission at any time, of its own initiative, to make a revaluation of any public utility. Under paragraph 64 any public utility "being dissatisfied with any order or decision of the commission fixing any valuation, rate or rates, tolls, charges, schedules, joint rate or rates, or regulation, requirement, act, service or other thing complained of may commence a proceeding in equity in the Supreme Court of the District of Columbia against the commission, as defendants, to vacate, set aside, or modify any such decision or order on the ground that the valuation, rate or rates, tolls, charges, schedules, joint rate or rates, or regulation, requirement, act, service, or other thing complained of fixed in such order is unlawful, inadequate, or unreasonable." It is further provided that all such proceedings "shall be tried and determined as are equity proceedings in said court." Paragraph 69 places the burden of proof upon the party adverse to the commission or seeking to set aside any determination, requirement or order of the commission, "to show by clear and satisfactory evidence" that the order or finding is "inadequate, unreasonable, or unlawful."

Under our view of the case it is necessary to consider but two questions at this time, the first of which is as to the scope of the court's jurisdiction under the statute. Ohio Valley Co. v. Ben Avon Borough, 253 U. S., 287, involved a statute of Pennsylvania substantially similar to ours. There the commission had found the fair value of the public utility and the trial court reviewed and reversed the finding and directed the commission to fix the value at a substantially higher sum. The Supreme Court of the State reversed the decision of the trial court on the ground, as found by the Supreme Court of the United States, that the courts were without authority "to determine the question of confiscation according to their own independent judgment." In the Supreme Court of the United States it was said: "The order here involved prescribed a complete schedule of maximum future rates and was legislative in character. (Authorities.) In all such cases, if the owner claims confiscation of his property will result, the State must provide a fair opportunity for submitting that issue to a judicial tribunal for determination upon its own independent judgment as to both law and facts; otherwise the order is void because in conflict with the due process clause, Fourteenth Amendment."

The statute here under examination gives to the findings of the commission prima facie effect, for it in terms places the burden upon the challenger or exceptant of showing by clear and satisfactory evidence that the findings are "inadequate, unreasonable, or unlawful." But where, as here, the decision is challenged on the ground that it is based upon a mistake of law, or that it is wholly unsupported by evidence, or is so clearly contrary to the weight of the evidence as to the amount to an arbitrary exercise of power, it is the duty of the court, under the rule announced by the Supreme Court, to exercise "its own independent judgment as to both law and facts," so far as it is necessary to determine the question in issue. The court's duty

in such a situation is very carefully outlined in Int. Comm. v. Union Pac. R., 222 U. S., 541, 547.

The second question relates to alleged errors in the rule adopted by the commission in finding present value. The commission found the fair value of the property, as of July 1, 1914, to be $10,250,000. The uncontradicted evidence showed that between that date and December 31, 1916, "the time of said valuation," there had been a sharp rise in values. On this point the commission said:

"The European war did not commence until August, 1914. Its effect was first a depression of short duration, since which prices have advanced under this artificial stimulus with such rapidity and to such an extent as to prevent the formation of reliable opinion as to their permanency or future effect upon the industrial and economic situation in this country."

Appellants contend that the commission, as matter of law, in reaching a conclusion as to the fair value of their property on December 31, 1916, should have taken into consideration the increased value of that property, as shown by the evidence, between th earlier and later dates. This the commission declined to do, but, taking for a basis the fair value of the property as of July 1, 1914, the commission added the net additional expenditures on the property subsequent to that date, and entirely ignored the evidence as to the increase in the value of the property forming the basis of the valuation of July 1, 1914. In its decision the commission said:

"Claims by the company for greater allowances in the reproduction estimate of the physical property were based largely upon the difference in prices created by extraordinary conditions which arose subsequent to July 1, 1914."

The trial court was of the view that the rule adopted by the commission was correct. We are unable to concur in that view.

The principal object of valuation, of course, it to provide a rate base, and the statute clearly contemplates that the commission shall ascertain the value as of "the time of said valuation," and not as of some anterior date. It has been ruled many times that there must be a fair return to a public utility "upon the reasonable value of the property at the time it is being used for the public." San Diego Land and Town Co. v. National City, 174 U. S., 739, 757; Minnesota Rate Cases, 230 U. S., 352, 434. In the present case the commission, in effect, declined to find the present value of the property because not satisfied as to how long existing conditions would continue. In assuming this position the commission must have overlooked paragraph 9 of the statute, authorizing it at any time, of its own initiative, to make a revaluation of the property of any public utility. In our view, it was the duty of the commission to have considered and given due weight to the evidence as to the then value of the property. As conditions changed and values were substantially affected, it would have been the further duty of the commission to exercise its discretion and revalue the property. The conditions existing were world wide and, while their duration and future effect were problematical, there was no immediate prospect of a return to normal conditions. It may be suggested, although the point was

not raised in the opinion of the commission, that practical difficulties would have been encountered in an attempt to ascertain the increase in value of the property between July 1, 1914, and December 31, 1916. But there was substantial evidence before the commission as to the rise in values and a brief investigation would have enabled the commission to determine, with substantial accuracy, how much in fairness should be added to the earlier valuation.

Much reliance was placed by the trial court upon the language of former Justice Hughes, as referee, in the case of Brooklyn Borough Gas Co. v. Public Service Commission (July 24, 1918), but we find nothing in the report, as we read it, justifying the action of the commission here in entirely ignoring the evidence as to value at the time the finding actually was made. The contention there was that the rates should be based "upon a plant valuation simply representing a hypothetical cost of reproduction" at a time of abnormally high prices due to exceptional conditions. There is a very substantial difference between considering the present cost of reproduction as one of the essential and important elements in the determination of present value, and the acceptance, as conclusive evidence of such value, of mere expert estimates of present cost of reproduction.

We are of the view, therefore, that the present cost of reproduction is one of the necessary elements for consideration, along with other relevant facts, in fixing the fair and reasonable value of the property. The law deals with existing conditions and not with abstract theories.

It follows that the decree must be reversed and the cause remanded for further proceedings not inconsistent with this opinion.

Reversed and Remanded.

Mr. Chief Justice SMYTH, dissenting:

The court does not disapprove the findings of the commission with respect to the value of the property on July 1, 1914, but holds in effect that since there was substantial testimony that the cost of reproduction had greatly increased between that date and December 31, 1916, the fair value of the property must also have increase, and therefore that the commission erred in not giving effect to that increase. And it imposes on the commission the duty of saying "how much in fairness should be added to the earlier (1914) valuation." But the commission have already decided that nothing in fairness should be added—that the abnormal increase in the cost of reproduction caused by the World War was not an index of fair value. The commission's notion of fairness upon the point is known now, for we can not assume that it has changed, and hence a direction to them to do what is fair in the premises is equivalent to saying that they should adhere to their former judgment. For this reason I think that there should be a definite instruction given as to whether the whole amount of this increase, or only a part, and if a part what part, should be added. Suppose the commission allow ten per cent of the increase, will the court approve their action or send the case back for re-trial? To my mind the commission are entitled to know just what the court's view is on the question.

But I do not think any part of the increase should be included.

because, in my judgment, it has no tendency to indicate the fair value of the property. The increase is not due to any investment by the company, but results solely from the World War, which has demoralized market conditions and rendered property values unreliable. To accept such an increase as a standard of value would be to adopt an unstable measure, which would lead to injustice. "Prices advanced under the artificial stimulus of the European war," said the commission, "with such rapidity and to such an extent as to prevent the formation of a reliable opinion as to their permanency or future effect upon the industrial and economical situation in this country." It was on prices thus advanced that the company based its reproduction cost, for its chief expert said: "The prices adopted were those which, we believe, a competent contractor if asked to bid on the construction of such a property on July 1, 1916, would use in making his estimate of cost." At that time the World War was at its height. Such a contractor would have to consider the great uncertainties attending the procurement of labor and material and the fluctuations in the cost of both, and to be safe would have to fix his prices enormously high. Could there be a more oscillating or unfair standard found? The commission were right when they said, "under what principle of law or equity may purely speculative-cost increments be created and added under the very eyes of the commission and during the very time of its investigations to find fair value."

Mr. Justice Gould, who reviewed the case in the supreme court, said reproduction cost could be used where it "is determined as of a fairly normal period," but "it would lose all value if made as of an abnormal period when prices were abnormally low or high." To be of any assistance or real use it must be made as of a normal time and the unit cost applied thereto should extend over a sufficient number of years to show a normal trend of prices." In harmony with this is the language of Judge Hughes as referee in the case of Brooklyn Borough Gas Company vs. Public Service Commission, decided July 24, 1918. He wrote the opinion of the Supreme Court in the Minnesota Rate Cases, and may be regarded as an expert on the question. "To base," he said, "rates upon a plant valuation simply representing the hypothetical cost of reproduction at a time of abnormally high prices due to exceptional conditions would be manifestly unfair to the public, and likewise to base rates upon an estimated cost of reproduction far lower than the actual bona fide and prudent investment because of abnormally low prices, would be unfair to the company;" and condemned the contention that the cost of reproduction should be used as a standard, by saying: "This would result in allowing a public service corporation to take advantage of a public calamity by increasing its rates above what would be a liberal return not only on actual investment, but upon a normal reproduction cost, in the view that unless it could make an essentially exorbitant demand upon the public it would be deprived of its property without due process of law." True, he was speaking there of the insistence that the cost of reproduction should be used as the sole test of value, but his argument would forbid the inclusion of any part of it. The point he was considering can not be distinguished in principle from the one in the instant case.

The New York Public Service Commission, First District, No. 5, P. U. R. 930, denying the proposition that reproduction cost should be used, said: "In the present juncture of universal upheaval, the application of such a postulate of evaluation to rate-making would lead to startling consequences."

"The cost-of-reproduction method," says the Supreme Court of the United States in the Minnesota Rate Cases, 230 U. S., 353, 452, "is of service in ascertaining the present value of the plant, when it is reasonably applied, and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which depend upon mere conjecture."

If, instead of the cost of reproduction being inflated, it was abnormally low as in the time of a panic, would it not be held unfair to value the company's property by such a standard? In the leading case of Smyth vs. Ames, 169 U. S., 466, 547, the value of the Union Pacific Railroad was under consideration for the purpose of fixing a rate base. The road was constructed a few years after the close of the Civil War when prices were abnormally high. The testimony in the case was taken in the wake of the panic of 1893 when the road could have been reproduced for about one-third of what it had cost. To take the cost of reproduction as the standard of value would be very unjust and the Supreme Court refused to do it, but it said that it should be considered with certain other factors named, without indicating what weight should be given to it or any of the others. The inference is that the triers of fact are to examine all these factors, allowing to each such effect, if any, as in fairness it should have in forming their appraisal of the value. The commission here considered the reproduction cost and rejected it because of its abnormality.

The rate base to be fixed was not to be for a month or a year, but for a number of years, for it is not believed that it was the intention of Congress that, in view of the trouble and expense attending it, a valuation should be made very often. If effect was given to the high reproduction cost prevailing in 1916, the patrons of the utility would be compelled to pay a rate which would afford a just return on the value fixed. This would be extremely unfair. It is said that if the cost of reproduction should drop, the commission are empowered by the statute to revalue the property. True, but if the company issued stocks and bonds based on the value placed on its property by the commission, we would have the same situation as existed in the Consolidated Gas Company case, 212 U. S., 19, 43. There a number of gas companies were authorized by the legislature to consolidate, and the consolidated company was empowered to issue stock "not to be in amount more 'than the fair aggregate value of the property, franchises and rights of the several companies to be consolidated.'" The franchise was valued at seven millions of dollars. Stock was sold on the basis of the valuation. Many years afterwards it was sought to fix the value of the consolidated property as a rate base. It was urged that no allowance should be made for the franchise, but the court said that as it was valued by direction of the legislature and

stock purchased on the assumption that it was worth $7,000,000, the stockholders were entitled to receive a fair return upon it. Applying that doctrine to this case, would not the stockholders who purchased stock on the theory that the high value fixed by the commission was the true value be in a strong position to say that they were entitled to a fair return on that value and that it could not be reduced if by doing so they were deprived of such a return?

The value placed on the property by the commission finds strong support in the following facts: The commission allowed $1,322,936.28 more than the amount found by their accountants as the historical cost of the property undepreciated; $1,037,486.91 more than their own finding of the same item of value; $1,137,157.09 more than the cost of reproduction in 1914, less accrued depreciation as found by their engineers; and $761,737.23 more than their own finding of the same element of value. They found the fair value of the property on July 1, 1914, to be $10,250,000, to which they added $761,737.23, the actual cost of additions made between July 1, 1914, and December 31, 1916, and fixed the value as of the later date at $11,231,178.43. The company claimed the fair value to be on December 31, 1916, $23,235,387. Compare this claim with what it said the property was worth in its reports to Congress before the investigation was entered upon. There is a report for each year running from 1906 to 1916. In the first the approximate value was placed at $8,500,000; in the one for 1912 at $13,000,000. These amounts improperly include the value of the Great Falls Power site, which is not being used for the benefit of the public, at $1,000,000, and $1,977,150.63, a book value, without any substantial basis, given to the property which the company acquired from the United States Electric Lighting Company. When these amounts are deducted from the figures of the 1912 report, a balance will be left of $10,022,850, which is $227,150 less than the July 1, 1914 value as fixed by the Commission.

After 1912 the reports did not contain a statement of the approximate value of the property, but did give its actual cost. The one for 1914 said it cost $11,655,070.30; the one for 1916, $12,510,344.10. Deduct from the last figures the two items which I have just said were improperly included in the 1912 statement, and which were included in these figures, and the balance would be $9,533,194.00 as the cost of the company's property according to its own statement made in 1916, the time when the decision of the commission was rendered; or $1,697,984.00 less than the commission allowed.

In view of the foregoing, I do not think the company has, in the language of the statute, clearly and satisfactorily shown that the finding of the commission is inadequate, unreasonable, and unlawful, and hence I dissent.

Monday, November 7th, A. D. 1921.

* * * * * * *

October Term, 1921.

No. 3485.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, and WASHINGTON RAILWAY AND ELECTRIC COMPANY, a Corporation, Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; J. Thilman Hendrick, Mabel T. Boardman, and Charles W. Kutz, Commissioners of the District of Columbia and as Such Constituting the said Public Utilities Commission of the District of Columbia.

Appeal from the Supreme Court of the District of Columbia.

This cause came on to be heard on the transcript of the record from the Supreme Court of the District of Columbia, and was argued by counsel. On consideration whereof, it is now here ordered, adjudged and decreed by this court that the decree of the said Supreme Court in this cause be, and the same is hereby, reversed, and that this cause be, and the same is hereby, remanded to the said Supreme Court for further proceedings not inconsistent with the opinion of this Court.

Per MR. JUSTICE ROBB.

November 7, 1921.

Mr. Chief Justice Smyth dissents.

UNITED STATES OF AMERICA, *ss:*

[SEAL.]

The President of the United States of America to the Honorable the Justices of the Supreme Court of the District of Columbia, Greeting:

Whereas, lately in the Supreme Court of the District of Columbia, before you, or some of you, in a cause between Potomac Electric Power Company, a Corporation, and Washington Railway and Electric Company, a Corporation, Plaintiffs, and The Public Utilities Commission of The District of Columbia, a Corporation; Oliver P. Newman, John G. D. Knight and Louis Brownlow, Commissioners of the District of Columbia, and as such constituting the said Public Utilities Commission of the District of Columbia, Defendants, Equity No. 35,336, wherein the decree of the said Supreme Court entered in said cause on the 12th day of March A. D. 1921 is in the following words, viz:

"This cause came on to be heard upon the bill of complaint herein exhibited, the answer of the Public Utilities Commission, the separate answer of the Washington Railway & Electric Company filed as a cross-bill, the answers of the Potomac Electric Power Company and the Public Utilities Commission to said cross-bill, and the transcript of record of the Public Utilities Commission of the District of Columbia in the matter of the valuation of the property of the Potomac Electric Power Company, including all the evidence taken before the Commission and the exhibits filed therewith, and referred to in said bill, and was argued by counsel, upon consideration whereof it is by the Court this 12th day of March, one thousand nine hundred and twenty, adjudged, ordered and decreed that the plaintiff's bill of complaint and the cross-bill of the Washington Railway and Electric Company be and the same are hereby dismissed with costs to the defendant, the Public Utilities Commission of the District of Columbia. And the Potomac Electric Power Company and the Washington Railway & Electric Company in open Court noted appeals to the Court of Appeals from this decree and the Court thereupon fixed the amount of the appeal bond to operate as a cost bond to be executed by the said appellants in the penalty of $100 00/100. And for good cause shown and by consent of parties the time for presenting a statement of the evidence in this case for approval by the Court is extended to the first day of September, one thousand nine hundred and twenty.

By the Court:

ASHLEY M. GOULD,
Justice."

as by the inspection of the transcript of the record of the said Supreme Court, which was brought into the Court of Appeals of the District of Columbia by virtue of an appeal, agreeably to the act of Congress in such case made and provided, fully, and at large appears.

And whereas, at the Term of October, A. D. 1921, of the said Court of Appeals, the retirement of Oliver P. Newman, John G. D. Knight and Louis Brownlow and the appointment of J. Thilman Hendrick, Mabel T. Boardman and Charles W. Kutz, Commissioners of the District of Columbia, and as such constituting the said Public Utilities Commission of the District of Columbia, having been suggested, it was ordered that the said J. Thilman Hendrick, Mabel T. Boardman and Charles W. Kutz, as Commissioners of the District of Columbia, and as such constituting the said Public Utilities Commission of the District of Columbia, be made parties appellee in this cause.

And whereas, in the present term of October, in the year of our Lord one thousand nine hundred and twenty-one, the said cause came on to be heard before the said Court of Appeals on the said transcript of record, and was argued by counsel:

On consideration whereof, It is now here ordered, adjudged, and decreed by this Court that the decree of the said Supreme Court in this cause be, and the same is hereby, reversed, and that this cause,

be, and the same is hereby remanded to the said Supreme Court for further proceedings not inconsistent with the opinion of this Court.

November 7, 1921.

You, therefore, are hereby commanded that such execution and proceedings be had in said cause as according to right and justice and the laws of the United States ought to be had, the said appeal notwithstanding.

Witness the Honorable Constantine J. Smyth, Chief Justice of said Court of Appeals, the 28th day of November in the year of our Lord one thousand nine hundred and twenty-one.

HENRY W. HODGES,
Clerk of the Court of Appeals of the District of Columbia.

[Endorsed:] 3485. Court of Appeals of the District of Columbia. No. 3485, October Term, 1921. Potomac Electric Power Company, a Corporation, et al., Appellants, vs. The Public Utilities Commission of the District of Columbia, a Corporation, et al. Mandate.

In the Court of Appeals of the District of Columbia.

No. 3485.

POTOMAC ELECTRIC POWER CO., a Corporation, and WASHINGTON RAILWAY AND ELECTRIC COMPANY, a Corporations, Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; Cuno H. Rudolph, James F. Oyster, and Charles Keller, Commissioners of the District of Columbia and as Such Constitute the said Public Utilities Commission of the District of Columbia, Appellees.

Now come the appellees by their counsel and move the court to allow them to appeal to the Supreme Court of the United States from the judgment and opinion of this court in the above entitled cause pursuant to paragraph 64 of Section 8 of the Act of March 4, 1913 (34 Stats. 974), commonly known as the Public Utilities Commission Law of the District of Columbia.

F. H. STEPHENS,
CONRAD H. SYME,
Attorneys for Appellees.

Service acknowledged this 12th day of November, 1921.

JNO. S. BARBER,
OSBURNE I. YELLOTT,
S. R. BOWEN,
Attorneys for Appellants.

[Endorsed:] No. 3485. Potomac Elec. Power Co. and the Washington Railway and Electric Company vs. Public Utilities Com-

mission of the District of Columbia. Motion for leave to appeal. Court of Appeals, District of Columbia. Filed Nov. 21, 1921. Henry W. Hodges, Clerk. F. H. Stephens and Conrad H. Syme, Attorneys for Appellees.

Saturday, November 26th, A. D. 1921.

* * * * * * *

No. 3485.

POTOMAC ELECTRIC POWER COMPANY, a Corporation, et al., Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation, et al.

On consideration of the motion for the allowance of an appeal to the Supreme Court of the United States in the above entitled cause, It is ordered that said motion be, and the same is hereby, denied, it appearing to the Court that the decree is not a final one.

In the Court of Appeals of the District of Columbia.

No. 3485.

POTOMAC ELECTRIC POWER CO., a Corporation, & WASHINGTON RAILWAY & ELECTRIC COMPANY, a Corporation, Appellants,

vs.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, a Corporation; Cuno H. Dudolph, James F. Oyster, and Charles Keller, Commissioners of the District of Columbia and as Such Constituting the said Public Utilities Commission of the District of Columbia, Appellees.

Assignment of Errors.

Now come the appellees, Cuno H. Rudolph, James F. Oyster and Charles Keller, constituting the Public Utilities Commission of the District of Columbia and say the Court erred—

1. In ruling that the Court below failed "to exercise 'its own independent judgment as to both law and facts' " in the valuation of the plaintiff's property.

2. In ruling that the Court below erred in sustaining the Public Utilities Commission in refusing to allow the increased value of the property between July 1, 1914 and December 31, 1916, in fixing the cost of reproduction of the company's property.

3. In ruling that the Public Utilities Commission, and the Court below, did not take into consideration the increase in the value of the Company's property between July 1, 1914 and December 31, 1916.

4. In reversing the cause and remanding for further proceedings.

F. H. STEPHENS,
C. H. SYME,
F. H. S.,
Attorneys for Appellees.

Service acknowledged this 29th day of November, 1921.

JNO. S. BARBOUR,
O. I. YELLOTT,
S. R. BOWEN,
Attorneys for Appellants.

Endorsed: No. 3485. Potomac Electric Power Co., et al., Appellants, vs. The Public Utilities Commission of the District of Columbia, et al. Assignment of Errors. Court of Appeals, District of Columbia, filed Nov. 29, 1921. Henry W. Hodges, Clerk.

In the Court of Appeals of the District of Columbia.

No. 3485.

POTOMAC ELECTRIC POWER COMPANY, Appellant,

vs.

PUBLIC UTILITIES COMMISSION, Appellee.

Designation of Record.

The clerk, in the preparation of the record, on an application for appeal to the Supreme Court of the United States, will please include the following papers, to wit:

1. Record.

1½. Change of parties.

2. Argument.

3. Opinion.

4. Dissenting opinion.

5. Decree.

6. Mandate.

7. Motion for appeal to the Supreme Court of the United States

8. Order denying motion for appeal.

9. Assignment of errors.

10. This signature.

F. H. STEPHENS,
C. H. SYME,
F. H. S.,
Attorneys for Appellee.

[Endorsed:] No. 3485. Potomac Electric Power Co., et al., appellants, vs. Public Utilities Commission et al. Designation of Record. Court of Appeals, District of Columbia. Filed Jan. 10, 1922. Henry W. Hodges, Clerk.

In the Supreme Court of the United States, October Term 1921.

No. —.

CHARLES KELLER, CUNO H. RUDOLPH and JAMES F. OYSTER, Constituting the Public Utilities Commission of the District of Columbia, Petitioners,

v.

THE POTOMAC ELECTRIC POWER COMPANY, a Corporation, Respondents.

Petition for Appeal and Writ of Certiorari.

Come now the petitioners in the above entitled cause and show to the Court:

1. That they constitute the Public Utilities Commission of the District of Columbia under the Act of March 4, 1913 (37 Stats. 974), and as much Commission are charged with the duty, under paragraph seven of said Act, of ascertaining and determining the fair value of the property of public utilities within the District of Columbia and among them that of the respondent, the Potomac Electric Power Company.

2. That paragraph seven of the said Act provides:

"That the Commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation."

3. That the valuation so to be made was for the purpose of establishing a rate based upon which might be determined the prices to be charged for the products and service of said public utilities.

4. That in the month of May, 1914, your petitioners, pursuant to the provisions of the said law, began the valuation of the property

of the various public utilities in the District of Columbia, among them that of the respondent herein.

5. "In entering upon the performance of this duty" the Commission says in its decision, "it was aware of the fact that the making of a valuation which would involve the study of accounts of many years' standing and of great intricacy, the inventory of millions of dollars' worth of property of many different kinds and acquired through the process of many years, and the determination of a vast number of prices and price components to be applied to the inventory so made, would require at least a year and doubtless a longer time."

6. "It became apparent at once that some date should be fixed as a point about which the data with reference to the original cost and the cost of reproduction of this property should revolve, and that this date should be fixed as of a time during the inventory such that, with required accuracy, the inventory might be limited to property strictly as existing on that date. July 1, 1914, was recommended by Commission's experts as fulfilling this condition. The Commission hereupon, in May, 1914, determined that the data as to historical cost and as to cost of reproduction new, less depreciation, and the inventories thereof should be considered as of July 1, 1914, further believing that the date thus fixed was of a time at which prices for labor and material—would be neither unduly depressed nor unusually elevated; that a study of unit costs and conditions at this period and for some years preceding it would result in the ascertainment of the cost of reproduction of the property under fairly normal and representative conditions. The Commission believed that a consideration of the historical cost and of reproduction cost and depreciation as of this date, together with the annual reports made by the company to Congress and to this Commission, and all other elements entering into the consideration of the fair value of the property would enable the Commission as a preliminary matter to determine fair value of the property as of July 1, 1914, and that, using this as a basis, and by addition of all net additional expenditures on property since that date, the Commission could fairly and equitably determine the fair value of this property as of a later date more nearly coinciding with the time when the final opinion of the Commission should be rendered in accordance with the law."

7. In the performance of the duties imposed upon it by paragraph seven of the Act, the Public Utilities Commission in May, 1914, commenced its ascertainment of the amount of money expended in the construction and equipment of the Potomac Electric Power Company and also the amount of money it would require to reproduce all of its property used and useful to its business, and to replace all of the physical properties belonging to it in the District of Columbia, and notified the Potomac Electric Power Company of the commencement of this work.

8. On May 2, 1916, the Commission furnished to the company a copy of the summaries of its tentative ascertainment of the amount

of money expended in the construction of said company and the cost of reproduction new and cost of reproduction less depreciation of its physical property used in and useful to its business in the District of Columbia; and, in accordance with paragraph eight of the Public Utilities Law, fixed June 8, 1916, as the date upon which public hearings would begin for the purpose of finally determining the fair value of the property of the company, and stated in its notice of said hearings that the Commission in addition to considering all evidence as to the value of its property which the company might desire to adduce, would also consider all evidence which might be adduced to show that changes, in, or additions to its prima facie ascertainments, should be made by reason of the fact that said ascertainments had been made as of July 1, 1914.

9. After hearings which begun in July, 1916, and closed on January 26, 1917, the typewritten record of which occupied 6,220 pages of matter and over 50 exhibits, the Commission, after a careful consideration of all of the testimony, on May 2, 1917, rendered its decision in the matter of the valuation of the Potomac Electric Power Company and found its fair value as of December 31, 1916, to be $11,231,178.43.

10. In reaching its estimate of the fair value of this property as of the last named date, the Commission found the historical cost of the property as of July 1, 1914, to be $9,212,513.09, and the cost of reproduction of the physical property of said respondents within the District of Columbia used and useful for electrical operations to be $11,909,228.78; that the accrued depreciation of the physical property as calculated with respect to historical cost was $1,642,591.09, and as estimated with respect to the cost of reproduction was $1,977,385.87, and the fair value of the property of the respondent as of July 1, 1914, to be $10,250,000.00.

11. The Commission further found that the respondent had made net additions of capital investments to its property from July 1, 1914, to December 31, 1916, exclusive of $981,170.43, by adding to the fair value of this property as found of July 1, 1914, to-wit, $10,250,000.00, the net additions at their actual cost made to its property from July 1, 1914, to December 31, 1916, the date of the final fair valuation, the fair value of the respondent's property as of December 31, 1916, was determined by the Commission to be $11,231,170.43.

12. The Potomac Electric Power Company although it had been advised that the reproduction cost of its property would be considered as of July 1, 1914, declined to make a reproduction cost estimate as of this date, but based its reproduction cost upon an assumed reconstruction period beginning July 1, 1916, and ending five years thereafter, basing the same upon prices which it "believed that a competent contractor would use in estimating the cost if asked to bid on July 1, 1916," and claimed a reproduction cost of the property of $23,235,387, as of July 1, 1916, its estimate thus exceeding the Commission's estimate of over ten million dollars.

13. The Commission gave consideration to the evidence of the Company's witnesses as to this reproduction value in so far as it threw any light upon a normal reproduction cost, but refused to allow the claims made by the company, stating its position in its opinion in these words:

"The European war did not commence until August, 1914. Its effect on the cost of labor and material was first a depression of short duration, since which prices have advanced under this artificial stimulus with such rapidity and to such an extent as to prevent the formation of reliable opinion as to their permanency or future effect upon the industrial and economic situation in this country. Whatever virtue there may be in some inclusion in fair value now of speculative values of the past, which the public may to some extent have been a party to, or may have condoned in part by failure to exercise its authority to the contrary, under what principle of law or equity may purely speculative-cost increments be created and added now under the very eyes of the Commission and during the very time of its investigations to find fair value? Whatever war prices the company has been compelled to pay since July 1, 1914, are allowed. They represent investment honestly and prudently made. The property represented by them should therefore not be considered as to what would have been its cost as of July 1, 1914, but must be considered in the final finding of fair value at what it actually did cost. This having been done, the Commission feels that no injustice is done to the public and no undue advantage given to the Company."

14. That the said Potomac Electric Power Company, being dissatisfied with the findings of the said Commission as to fair value, filed its bill in equity in the Supreme Court of the District of Columbia to have the orders and findings of the said Commission reviewed and modified pursuant to paragraph sixty-four of the said Act of Congress, which provided in part as follows:

"Par. 64. That if at any time the commission shall be in doubt of the elements of value to be by them considered in arriving at the true valuation under the provisions of this section, they are authorized and empowered to institute a proceeding in equity in the Supreme Court of the District of Columbia petitioning said court to instruct them as to the element or elements of value to be by them considered as aforesaid, and the particular utility under valuation at the time shall be made party defendant in said action.

"That any public utility and any person or corporation interest(ed) being dissatisfied with any order or decision of the Commission fixing any valuation rate or rates, tolls, charges, schedules, joint rate or rates, or regulation, requirement, act, service or other thing complained of may commence a proceeding in equity in the Supreme Court of the District of Columbia against the Commission, as defendants, to vacate, set aside, or modify any such decision or order on the ground that the valuation, rate or rates, tolls, charges, schedules, joint rate or rates, or regulation, requirement, act, service or other thing complained of fixed in such order is unlawful, inadequate,

or unreasonable. The answer of the Commission, on any such action being instituted against it, or the answer of any public utility on any such action being commenced by said Commission against it, shall be filed within ten days, whereupon said proceeding shall be at issue and stand ready for trial.

"All such proceedings shall have precedence over any civil cause of a different nature pending in such court, and the Supreme Court of the District of Columbia shall always be deemed open for the trial thereof, and the same shall be tried and determined as are equity proceedings in said court. Any party, including said Commission, may appeal to the Court of Appeals of the District of Columbia, and therefrom to the Supreme Court of the United States, which shall thereupon have and take jurisdiction in every such appeal." * * *

15. That Ashley M. Gould, Associate Justice of the Supreme Court of the District of Columbia, heard the petition of the said company, the answer of the Commission, and after reading all of the testimony adduced before the Commission, and hearing extended argument, entered a decree upon the twelfth day of May, 1920, sustaining the findings of the Public Utilities Commission in every respect; that the said company thereupon appealed to the Court of Appeals of the District of Columbia, which upon the seventh day of November, 1921, reversed the decree of the court below, apparently holding that the lower court had not exercised "its own independent judgment as to both law and facts" as far as it was necessary to determine the question at issue, and that the Commission erred in not considering, or in not allowing, for the increased value of the company's property between July 1, 1914, and December 31, 1916—Chief Justice Smythe dissenting.

16. In holding that the Commission did not err in basing its reproduction estimate upon normal costs as of July 1, 1914, and adding thereto actual costs from July 1, 1914, to the time when its final finding of fair value was made as one of the factors to be considered in arriving at the final fair value of the property, Mr. Justice Gould in his opinion used the following language:

"It was strenuously contended by counsel for the Power Company that the Commission in making its estimate of reproduction cost as of July 1, 1914, committed error; that the reproduction cost should have been taken as it was by Almert, the expert for the Power Company, in his report as of July 1, 1916. To this I cannot agree. Reproduction cost less depreciation is but one of the elements of value, and in my judgment ordinarily only a negative element, to be considered in the final determination of fair value. Its use is to throw light upon the actual amount invested, and this can only be done where the reproduction cost is determined as of a fairly normal period. It would lose all value if made as of an abnormal period when prices were abnormally low or high. To be of any assistance or real use, it must be made as of a normal time and the unit cost

applied thereto should extend over a sufficient number of years to show a normal trend of prices.

* * * "The date adopted by the Commission in this case was as near a normal date as it was perhaps possible to get; the unit costs applied to the inventory were determined after a consideration of the trend of prices given by the witnesses, and the Commission added five per cent to the entire reproduction cost of the physical property as found by its engineers. As already indicated by the quotation from the opinion of Judge Hughes, the fact that prices of labor and material on account of the war in Europe advanced to great heights with a rapidity and to an extent never before experienced from about the 1st of January, 1915, to the time of the valuation, has no bearing whatsoever upon the cost of reproduction as a factor in a valuation for rate-making purposes. The Commission would have committed a great error, unjust to the public, and destructive of the value of the reproduction cost as an element in a valuation case of this character, to have attempted to find normal prices based upon either current prices as of July 1, 1916, or upon normal prices then or thereafter as claimed by the Power Company. Such a course would have greatly impaired the reproduction cost estimate as one of the elements of fair value. The adoption of the Commission of the date of July 1, 1914, as to which the inventory was to be made and normal unit prices applied, was reasonable and proper, and its action in so doing has the sanction of the highest legal and engineering authorities."

17. That upon the rendition of the opinion and judgment of the Court of Appeals of the District of Columbia in this cause your petitioners appealed to said court for leave to appeal from its decision and judgment to the Supreme Court of the United States under the provisions of paragraph sixty-four of the Public Utilities Act, above set forth, but said Court of Appeals refused to allow this appeal upon the ground that its said judgment was not a final judgment and no appeal would lie therefrom.

18. The petitioners further show to the Court that their right of appeal in this case depends upon the provisions of said paragraph sixty-four, above quoted, which does not contemplate that the judgment or decree should necessarily be a final judgment or decree from which only an appeal would lie under section two hundred and fifty of the Judicial Code; that they are entitled to appeal to this Court from any order or decree in the Court of Appeals in the District of Columbia of sufficient importance to engage the attention of this Court, whether such decree be final or merely interlocutory; that, as will appear from the annexed argument in support hereof, the judgment or decree rendered in this case is, in substance and effect, a final decree, and therefore within the statute even if it should be considered that a final judgment only, is appealable.

19. Petitioner files herewith, as an exhibit, a certified copy of the entire transcript of record of the case, including the proceedings in the Court of Appeals.

Prayers.

Wherefore your petitioners pray:

1. That this Court will grant them an appeal from the judgment and opinion of the Court of Appeals of the District of Columbia in this cause and require the record and proceedings therein to be sent to this Court for review here.

2. Lest the Court, however, should be of opinion that no appeal lies in the present condition of the cause, that it will issue a Writ of Certiorari to the said Court of Appeals commanding the record and proceedings of said Court to be brought here for review.

C. KELLER.
CUNO H. RUDOLPH,
JAS. F. OYSTER.

F. H. STEPHENS,
General Counsel.
C. H. SYME,
F. H. S.,
Special Counsel.

Washington, Jany. 21st, 1922.

Appeal allowed under Par. 64, Chapter 150, Act of March 4th, 1913.
No bond required.
WM. H. TAFT,
C. J. U. S.

DISTRICT OF COLUMBIA, *ss:*

We, Charles Keller, Cuno H. Rudolph and James F. Oyster, constituting the Public Utilities Commission of the District of Columbia, being duly sworn, depose and say that we have read the foreg-ing and annexed petition by us subscribed, and know the contents thereof and that the matters and things therein stated upon our personal knowledge are true and those stated upon information and belief we believe to be true.

C. KELLER,
CUNO H. RUDOLPH,
JAS. F. OYSTER,
Commissioners of the District of Columbia, Constituting the Public Utilities Commission of the District of Columbia.

Subscribed and sworn to before me this 13th day of Jan., 1922.
[SEAL.] JAMES C. WILKES,
Notary Public, D. C.

Argument in Support of Petition.

1. The judgment of the Court of Appeals reversed the decision of Mr. Justice Gould and in reversing it held that the Commission as one of the factors to be considered in finally determining the fair value of the property of the respondents was the increase in the value of the property occasioned by war time prices for labor and material accruing between July 1, 1914, and December 31, 1916, the date when the Commission's final determination of the fair value of the property was made.

2. The Commission had refused to consider these inflated prices except insofar as they might throw some light upon the reproduction cost of the property as of July 1, 1914, when prices were neither unduly depressed nor unduly inflated. The Commission was fixing a fair value as a basis for charges for rates and services and its position in this regard with respect to reproduction cost as one of the elements to be considered in the final determination of fair value is clearly set forth in the petition.

3. The judgment of the Court of Appeals is a final reversal of this position of the Commission which was sustained by Mr. Justice Gould when its decision was appealed from and is, in effect, a final judgment upon this important aspect of the case and presents fully and fairly the question as to whether reproduction cost based upon abnormal prices is to be considered as one of the determining factors in the final finding of the fair value of the property of the respondents.

4. It is of the utmost importance, both to the Commission and to the public, that this question should be now disposed of and for this reason an appeal to the Supreme Court of the United States was requested from the Court of Appeals of the District of Columbia, and for this reason the petition in this case is presented.

5. Cases usually come to this Court by appeal or writ of error only from the final judgment of the Court of Appeals. Under Section two hundred and fifty of the Judicial Code, regulating appeals and writs of error from the Court of Appeals of the District of Columbia from this Court, it is expressly provided "any final judgment or decree of the Court of Appeals of the District of Columbia may be re-examined and affirmed, reversed or modified by the Supreme Court of the United States upon writ of error or appeal in the following cases." There is here only an appeal from the final judgment or decree, and that only in a limited class of cases provided for in that section. The succeeding section provided for certiorari and for certifying cases to this Court for opinion where judgment of the Court of Appeals would be final.

6. Under paragraph sixty-four, before cited, it will be noted that any public utility or any person or corporation dissatisfied "with any order or decision of the Commission" may file a bill in equity

for review of that order or decision and that such cases shall have precedence over civil causes of a different nature in the Supreme Court of the District. There is no provision at this stage for an appeal by the Commission. Probably because it would be absurd to have the Commission appeal from its own orders, which situation will arise if this cause be remanded to the Supreme Court of the District of Columbia and from the Supreme Court of the District to the Commission to carry out the instructions of the Court of Appeals relating to the cost of reproduction of the company's property.

7. The statute then provided "any party, including said Commission may appeal from the order or decree of said Court to the Court of Appeals of the District of Columbia and therefrom to the Supreme Court of the United States, which shall thereupon have and take jurisdiction in every such appeal." Here is again a failure to require that the order or decree shall be final. That this difference in language between this Act and the Judicial Code is intentional is apparent from the fact that disputes between the Public Utilities Commission and the utilities under their jurisdiction would be of sufficient importance as touching the public body at large, to justify an appeal to this Court in all cases. Not only is the right given to the Equity Court to review "any order or decision of the Commission," but the statute also prescribes in furtherance of this view, that such cases shall have precedence over other civil business, and that the Court shall be always open for the trial of such cases.

8. Should, however, a final judgment be deemed necessary for the purpose of appeal and that the judgment rendered is not a final judgment, and the cause be remanded to the Supreme Court of the District of Columbia for further proceedings pursuant to the mandate of the Court of Appeals, the cause would then be referred again to the Commission to ascertain the cost of reproduction, taking into consideration the high prices and inflated values existing between July 1, 1914, and December 31, 1916. After making allowance for high costs existing between these two periods, an allowance not deemed fair by the Commission, but insisted upon by the Court of Appeals, how would the Commission get this question before the Equity Court, or would the Commission be entitled, after making such revaluation, to go into the Equity Court to review its own finding, although that finding was made under protest? Undoubtedly the company would be found protesting that there was no way under the statute in which the Commission could appeal to the Equity Court, and the Commission would find itself involved in a tangle of technicalities, a way out of which would be exceedingly difficult, if not impossible.

9. But, this decree has all the elements of a final decree. If the very steps outlined above should be taken, the case would come again to the Court of Appeals and thence to this Court on appeal by the Commission from its findings, made under protest and present to this Court the precise questions involved in this petition.

10. If, however, this Court should be of opinion that no appeal lies in the present status of the cause from the Court of Appeals to

this Court, then, because of the great public interest involved in this controversy and the importance of the questions involved, this Court is respectfully asked to issue a Writ of Certiorari, as was done in the case of the Union Pacific Railroad Company v. Weld Company, 247 U. S. 282.

F. H. STEPHENS,
General Counsel for the Public Utilities Commission.
C. H. SYME,
F. H. S.,
Special Counsel for the Public Utilities Commission.

[Endorsed:] Court of Appeals. No. 3485. Equity No. 35,336. Charles Keller, Cuno H. Rudolph and James F. Oyster, Constituting the Public Utilities Commission of the District of Columbia, Petitioners, vs. The Potomac Electric Power Company, a Corporation, Respondents. Petition for appeal and writ of certiorari, and order allowing appeal. Court of Appeals, District of Columbia. Filed Jan. 25, 1922. Henry W. Hodges, Clerk. F. H. Stephens, George P. Barse, Attorneys for Petitioners.

UNITED STATES OF AMERICA, *ss:*

To Potomac Electric Power Company, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States, at Washington, within thirty days from the date hereof, pursuant to an appeal, filed in the Clerk's Office of the Court of Appeals of the District of Columbia, wherein Charles Keller, Cuno H. Rudolph, and James F. Oyster, constituting the Board of Public Utilities Commission of the District of Columbia, are appellants, and you are appellee, to show cause, if any there be, why the final decree in said appeal mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

Witness, the Honorable William H. Taft, Chief Justice of the United States, this twenty-third day of January, in the year of our Lord one thousand nine hundred and twenty-two.

WM. H. TAFT,
Chief Justice of the United States.

January 24, 1922.

Service acknowledged.

POTOMAC ELECTRIC POWER COMPANY.
E. T. SERVEN,
Vice President.

[Endorsed:] Court of Appeals, District of Columbia. Filed Jan. 25, 1922. Henry W. Hodges, Clerk.

Court of Appeals of the District of Columbia.

I, Henry W. Hodges, Clerk of the Court of Appeals of the District of Columbia, do hereby certify that the foregoing printed and typewritten pages numbered from 1 to 1083 inclusive constitute a true copy of the transcript of record and proceedings of said Court of Appeals in the case of Potomac Electric Power Company, a corporation, and Washington Railway and Electric Company, a corporation, Appellants, vs. The Public Utilities Commission of the District of Columbia, a corporation; J. Thilman Hendrick, Mabel T. Boardman, and Charles W. Kutz, Commissioners of the District of Columbia, and as such constituting the said Public Utilities Commission of the District of Columbia, No. 3485, October Term, 1921, as the same remain upon the files and records of said Court of Appeals.

In testimony whereof I hereunto subscribe my name and affix the seal of said Court of Appeals, at the City of Washington, this 26th day of January A. D. 1922.

[Seal, Court of Appeals, District of Columbia.]

HENRY W. HODGES,
Clerk of the Court of Appeals of the District of Columbia.

Endorsed on cover: File No. 28,673. District of Columbia Court of Appeals. Term No. 718. Charles Keller, Cuno H. Rudolph, and James F. Oyster, constituting the Board of Public Utilities Commission of the District of Columbia, appellants, vs. Potomac Electric Power Company. Filed January 26th, 1922. File No. 28,673.

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IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, [illegible].

No. 260.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, APPELLANT,

vs.

POTOMAC ELECTRIC POWER CO., INCORPORATED, AND WASHINGTON RAILWAY AND ELECTRIC COMPANY, APPELLEES.

BRIEF FOR THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA.

FRANCIS H. STEPHENS,
Corporation Counsel, D. C.
CONRAD H. SYME,
Attorneys for Appellant,
The Public Utilities Commission
of the District of Columbia.

INDEX.

Page.

Objections of the company to the Commission's finding as to "historical cost" and "cost of property used and useful for electric operations" and the decree of Mr. Justice Gould affirming the same 18

Final analysis of plant and equipment account by Commission's accountant (R., 944) 20

Summary of cost of property, submitted by the Potomac Electric Power Co. (R., 947) 22

Assignment of error No. 27 (R., p. 65) 26

Assignments of error 29, 30, 31 (R., p. 65) 29

Assignment of errors 31 (R., p. 865) 38

Assignment of errors 26 (R., p. 65) 40

Assignment of errors 23 (R., pp. 64-65) 41

Assignment of error 24 (R., p. 65) 43

Assignment of error 25 (R., p. 25) 53

Assignment of error 18 (R., p. 64) 54

Assignment of error 18 (R., p. 64) 59

Assignment of errors 18 (R., p. 64) 61

Assignment of errors 28 (R., p. 65) 63

Assignment of error 18 (R., p. 64) 65

Assignment of error 18 (R., p. 64) 66

Assignment or errors 18 (R., p. 64) 67

Assignment of errors 18 (R., p. 64) 68

Assignment of errors 29 (R., p. 65) 70

Reproduction new less accrued depreciation 70

Assignment of errors 33 (R., p. 65) 70

Extract from annual reports of the Potomac Electric Power Company to Congress 85

Comparison of Almert and Pillsbury reports 87

Assignment of error 40 (R., p. 66) 91

Assignment of error 35 (R., p. 66) 105

Assignment of errors 41 (R., p. 66) 111

Assignment of errors 41 (R., p. 66) 117

Comparison of Almert and Pillsbury reports 118

Assignment of errors 39 (R., p. 66) 123

Assignment of errors 38 (R., p. 66) 125

The Court of Appeals' intimation that Mr. Justice Gould did not exercise his independent judgment in sustaining the findings of the Commission 130

Fair value and reproduction cost 136

Dissenting opinion by Chief Justice Smyth 148

CASES CITED.

Page.

Spring Valley Water Co. vs. San Francisco, 165 Fed., 667, 697.. 50
Whitten, Vol. 1, p. 197..... 51
F. G. Campbell vs. Hood River Gas and Electric Company, P. U. R. 1915 D, 855..... 51
Potee et al. vs. The Brooklyn and Curtis Bay Light & Water Company, P. U. R. 1915 A, 42..... 51, 52
Kansas City Electric Light Company, P. U. R. 1917 C, 754.... 72
Duluth Street R. Co. vs. Railroad Com., P. U. R. 1915 D, 192... 73
Southwestern Telegraph and Telephone Co., P. U. R. 1915 E, 1908 74
Morenci Water Company, P. U. R. 1915 C, p. 536..... 74
Simms vs. Columbia Telephone Company, P. U. R. 1915 C, p. 385. 75
In re San Jose Water Company, P. U. R. 1915 E, p. 714..... 75, 76
Sandpoint vs. Sandpoint Water and Light Company, P. U. R. 1915 F, pp. 449 and 470..... 76, 77
In re Chesapeake and Potomac Telephone Company, P. U. R. 1916 C, p. 929..... 77
City of Holland vs. McGuire, P. U. R. 1920, B. No. 1, p. 140.... 77
Fox vs. Pine Grove Electric Company, P. U. R. 1920, C. No. 281. 77
In re St. Joseph Railway Company, P. U. R. 1920, C. No. 3546... 78
In re West Virginia Water & Electric Company, P. U. R. 1920, D. No. 2, p. 409..... 78
N. Y. Supreme Court, Kings Co. Lighting Company vs. Lewis, P. U. R. 1920, D. No. 1, p. 145..... 78
Whitehead vs. Niagara Falls Gas & Electric Co., P. U. R. 1920, C. No. 2, p. 265..... 78
In re Milton & Junction Tel. Co. P. U. R. 1920, C. No. 1, p. 111. 78
In re Public Power Company, P. U. R. 1920, E. No. 4, p. 711.... 78
Milne vs. Montpelier and Barre Light & Power Co., P. U. R. 1920, E. No. 3, p. 559..... 78
In re C. & P. Telephone Co., P. U. R. 1920, F. No 3, p. 459..... 78
In re Southern Pacific Co., P. U. R. 1920, F. No. 4, p. 775, quoting Justice Hughes in Brooklyn Borough Gas Co. vs. Public Service Com., N. Y., P. U. R. 1918, F. 335..... 78
In re Georgia Ry. & Power Co., P. U. R. 1921, A. No. 1, p. 165... 78
New York Public Service Commission in re N. Y. State railways, P. U. R. 1922-B., p. 78..... 79
Virginia Corporation Commission in re Culpeper Telephone Company, P. U. R. 1920-D., p. 307..... 79
City of Huntington vs. Public Service Commission, 110 S. E., 92. 79
Brooklyn Borough Gas Company vs. the Public Service Commission, New York, P. U. R. 1918, F. 335..... 79

Page.

Public Service Gas Co. vs. Board of Public Utility Commissioners, 85 N. J. —; 87 Atl., 651, July 7, 1913..... 96
Wilcox vs. Consolidated Gas Co., 212 U. S., 19..... 98
Fuhrman vs. Buffalo General Electric Company, 3 P. S. C. 2d D. (N. Y.), 739; 18 A. T. & T. Co. Com. L., 1094, April 2, 1913... 98, 99
Report of St. Louis Public Service Commission to the Municipal Assembly of St. Louis on the Southwestern Telegraph and Telephone Company, October 14, 1913..... 100
Hill vs. Antigo Water Co., 3 W. R. C., 623, August 3, 1909..... 100
Roundup vs. Roundup Coal Min. Co., P. U. R. 1916 D, 393..... 101
C. L., Vol. 6, 935..... 102
Re Dunham, P. U. R. 1916 E, 544..... 102
Meek vs. Consumers Electric Light & P. Co., P. U. R. 1915 A, 956 102
Melcher vs. Mt. Whitney Power & Electric Co., P. U. R. 1916 C, 923 102
Portland Rwy., Light & Power Co., Investigation of Rates, R. R., Vol. 9, 218..... 102
Re Portland R., Light & P. Co., P. U. R. 1916 D, 976..... 102
Westchester Lighting Co., Re Rates, R. R., Vol. 6, 247..... 102
Moritz vs. Edison Electric Illuminating Co., P. U. R. 1917 A, 364 102
Croty vs. Tomah Electric & Teleph. Co., P. U. R. 1917 A, 439.. 102
Re Stevenot, P. U. R. 1917 A, 563..... 102
Re Mountain States Teleph. & Teleg. Co., P. U. R. 1917 B, 198.. 103
Re Central Maine Power Co., P. U. R. 1916 A, 930..... 103
Taylor vs. Northwest Light & Power Co., P. U. R. 1916 A, 372.. 103
Sandpoint vs. Sandpoint Water & Light Co., P. U. R. 1915 F, 455 103
Re Cincinnati Gas & E. Co., P. U. R. 1916 F, 416..... 103
Mantua Twp. vs. New Jersey Gas Co., P. U. R. 1916 C, 163.... 103
Re Ocean County Gas Co., P. U. R. 1915 B, 601..... 103
Public Service Commission ex rel. Seattle Lighting Co., P. U. R. 1915 B, 135..... 103
Ohio Valley Water Company vs. Ben Avon Borough, 253 U. S., 287 130
N. Y. and Queens County Gas Company vs. McCall, 245 U. S., 337 130
Ill. C. R. R. Co. vs. Interstate Commerce Commission, 206-459. 135, 136
Munn vs. Ill., 94 U. S., 83..... 137
Smyth vs. Ames, 169 U. S., 466..... 138, 139
Minnesota Rate Cases, 230 U. S., 352..... 138
Maires vs. Flatbush Gas Company, Vol. 1920 E, No. 5, P. U. R., 930 144

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1922.

No. 260.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, APPELLANT,

vs.

POTOMAC ELECTRIC POWER CO., INCORPORATED, AND WASHINGTON RAILWAY AND ELECTRIC COMPANY, APPELLEES.

BRIEF FOR THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA.

By section 8 of the act of Congress approved March 4, 1913, the Public Utilities Commission of the District of Columbia was established, composed of the Commissioners of the District of Columbia.

Paragraph 7 of section 8, which section will be referred to as the Public Utilities Law, provides:

> "That the Commission shall value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation."

This law requires also that before *final* determination the Commission, after the required notice, is ordered to hold a public hearing as to such valuation.

The valuation contemplated by Congress, the duty of making which it imposed upon the Public Utilities Commission, was a valuation to be used as a basis upon which rates were to be fixed—in other words, a valuation for rate-making purposes. This is admitted by all parties hereto.

In April and May, 1914, the Commission organized its valuation bureau and commenced the work of valuation in this case. The hearing commenced on June 26, 1916, and continued until January 26, 1917.

On May 2, 1917, the Commission entered its order No. 208, in and by which it held the fair value of the property of the Potomac Electric Power Company used and useful for the convenience of the public in the District of Columbia on the 31st day of December, 1916, to be $11,231,170.43. This valuation was arrived at, in some respects, by what is known as the "split inventory" method. That is to say, the historical cost of the property representing the actual investment so far as it could be ascertained, the reproduction cost new, less accrued depreciation and all other elements of value required by law to be considered, were determined as of the normal date of July 1, 1914, and the fair value of the property as of this date was determined. To this was added, *at actual cost,* the additions to the property from July 1,

1914, to December 31, 1916, the date of the final valuation, and the "fair value" was determined as of the latter date.

From the order of the Commission fixing this valuation the Potomac Electric Power Company, hereinafter called "the company" for the sake of convenience, appealed to the Supreme Court of the District of Columbia as provided by the statute. The case was heard by Mr. Justice Gould and was argued for many days before him in November and December, 1917, and on March 2, 1920, he filed an opinion sustaining the findings of the Commission in every particular and a decree was thereupon entered dismissing the bill of the company.

From this decree the company appealed to the Court of Appeals of the District of Columbia and this court on November 7, 1921 (Mr. Chief Justice Smyth dissenting), remanded the cause to the Public Utilities Commission apparently upon the ground that in reaching its conclusion as to valuation it had not given consideration to the rise in unit prices since July 1, 1914, and it apparently considered that Mr. Justice Gould had not sufficiently exercised his individual judgment in passing upon the findings of the Commission when the case was before him for determination.

Application was at once made by the Public Utilities Commission to the Court of Appeals of the District of Columbia for the allowance of the appeal from its judgment and decision to the Supreme Court of the United States, which application was denied.

Thereupon a petition was presented to this Court praying the allowance of this appeal, which was granted in due course and the record of the entire case is now before this Court.

Before entering into the discussion of the valuation made

by the Commission, as to all of which this appeal applies, it may be well to state to the Court why it was that the Commission adopted the date July 1, 1914, as the fixed time to which the inventories were to be adjusted and unit prices determined.

Counsel for the company claimed below that fixing July 1, 1914, as the date as to which the inventory of its property should be adjusted and unit prices applied did it a great injustice and reduced the value of its property. They insisted that the Commission should have applied the prices as of July 1, 1916, and even later, and that the difference between the normal costs of July 1, 1914, and the abnormal costs of July 1, 1916, as applied to the component parts of the equipment, which were an increase over the 1914 normal costs of from 20 to 200 per cent, represented an additional value which the company did not claim to have created itself, but to which they contended it was entitled.

The law specifically provides that the Commission "shall value the property of the utilities, within the District of Columbia, actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation," and this evidently referred to property in existence and used for the purpose of supplying the product of the company in the District, at the time the valuation was made. The past history of existing property would, of course, be inquired into with reference to its cost and general relation to the company, and the consequence of this was, as will hereafter appear, that the accounting officers of the Commission were directed to inquire into the cost of existing property as the same was disclosed from the books and records of the company, or from any other information available to

them, and the engineering officers were directed to ascertain the cost of the reproduction of existing property less accrued depreciation. Reports on these subjects were to be made to the Commission, and thereafter considered by the Commission in the light of all the other evidence in the case.

It is apparent that so far as the reproduction feature, at least, was concerned, an inventory would have to be made of existing physical property, because that was what was to be theoretically reproduced, and therefore that some convenient date should be set as of which the inventory could be made, and unit costs applied, and when the work was concluded the books of the company would readily show *what additions to the property had been made since the time of the date adopted.*

The law provides that the fair value of the property should be found as of the time of the valuation. Such a valuation is a matter of many months in the making, and the certainty of the work required that some date occurring during the progress of the work should be set for the purpose of inventory and the approximation of unit costs. In consequence of this the date of July 1, 1914, was adopted by the Commission as a convenient date and one to which both the company and the Commission could readily adapt its work, and the Potomac Electric Power Co. was so notified on June 12, 1914. This date was *not* to be the date of the final valuation. The final valuation was made as of Dec. 31, 1916.

The question before the Commission was not what was the reproduction cost at the time of the final valuation. The question to be then determined was what was the fair value of the property for rate-making purposes. The Commission had its evidence of what the reproduction cost was as of July

1, 1914. It had before it the increase in costs of labor and material on July 1, 1916. All it then had to determine was whether such increased cost had in fact added to the fair value of the property. If it did, it could be allowed. If it did not, it could not be allowed.

It is due to the Commission that their reasons for adopting this date should be herein set forth in full. They are taken from pages 102 and 103 of the Commission's decision and are as follows (R., p. 1049):

> "The reproduction cost estimate, in so far as the physical property is concerned, when made with the care and accuracy which characterizes the Commission's engineers' report in this case, and after such adjustments have been made thereto as deemed equitable, under the circumstances, is of much worth and is given decided weight by this Commission.
>
> "Claims by the company for greater allowances in the reproduction estimate of the physical property were based largely upon the difference in prices created by extraordinary conditions which arose subsequent to July 1, 1914.
>
> "The reproduction cost report of the company's witness, Almert, was as of July 1, 1916, with costs speculatively estimated as to that date and the unknown conditions to follow. The principal argument of counsel for the company is that such costs should form the basis of ascertainment of fair value at this time by this Commission, and that the Commission cannot, in law or in equity, now determine fair value as of the date of Commission's findings of historical cost and cost of reproduction, respectively, namely, as of July 1, 1914. With this view the Commission most decidedly disagrees.

"The law requires that the Commission shall value the property of each utility within the District of Columbia actually used and useful for the convenience of the public at the fair value thereof at the time of said valuation" (Par. 7). In entering upon the performance of this duty, the Commission was aware of the fact that the making of a valuation which would involve the study of accounts of many years' standing and of great intricacy, the inventory of millions of dollars' worth of property of many different kinds and acquired through the process of many years, and the determination of a vast number of prices and price components to be applied to the inventory so made, would require at least a year and doubtless a longer time. It became apparent at once that some date should be fixed as a point about which the data with reference to the original cost and the cost of reproduction of this property should revolve, and that this date should be fixed as of a time during the inventory such that, with required accuracy, the inventory might be limited to property strictly as existing on that date. July 1, 1914, was recommended by Commission's experts as fulfilling this condition. The Commission thereupon, in May, 1914, determined that the data as to historical cost and as to cost of reproduction new, less depreciation, and the inventories thereof should be considered as of July 1, 1914, further believing that the date thus fixed was of a time at which prices for labor and material derived in the manner explained in the Commission engineer's report and as testified to by witness Pillsbury, would be neither unduly depressed nor unusually elevated; that a study of unit costs and conditions at this period and for some years preceding it would result in the ascertainment of the cost of reproduction of the property under fairly normal and

representative conditions. The Commission believed that a consideraton of the historical cost and of reproduction cost and depreciation as of this date, together with the annual reports made by the company to Congress and to this Commission, and all other elements entering into the consideration of the fair value of the property would enable the Commission as a preliminary matter to determine fair value of the property as of July 1, 1914, and that, using this as a basis, and by addition of all net additional expenditures on property since that date, the Commission could fairly and equitably determine the fair value of this property as of a later date more nearly coinciding with the time when the final opinion of the Commission should be rendered in accordance with the law.

"The Commission is still of that opinion.

"The European war did not commence until August, 1914. Its effect on the cost of labor and material was first a depression of short duration, since which prices have advanced under this artificial stimulus with such rapidity and to such an extent as to prevent the formation of reliable opinion as to their permanency or future effect upon the industrial and economic situation in this country. Whatever virtue there may be in some inclusion in fair value now of speculative values of the past, which the public may to some extent have been a party to, or may have condoned in part by failure to exercise its authority to the contrary under what principle of law or equity may purely speculative-cost increments be created and added now under the very eyes of the Commission and during the very time of its investigations to find fair value? Whatever war prices the company has been compelled to pay since July 1, 1914, are allowed. They represent investment honestly and prudently

made. The property represented by them should therefore not be considered as to what would have been its cost as of July 1, 1914, but must be considered in the final finding of fair value at what it actually did cost. This having been done, the Commission feels that no injustice is done to the public and no undue advantage given to the company."

In disposing of the contention of the company in this regard, Justice Gould says (R., p. 57):

"It was strenuously contended by counsel for the Power Company that the Commission in making its estimate of reproduction cost as of July 1, 1914, committed error; that the reproduction cost should have been taken as it was by Almert, the expert for the Power Company, in his report as of July 1, 1916. To this I cannot agree. Reproduction cost less depreciation is but one of the elements of value, and in my judgment ordinarily only a negative element, to be considered in the final determination of fair value. Its use is to throw light upon the actual amount invested, and this can only be done where the reproduction cost is determined as of a fairly normal period. It would lose all value if made as of an abnormal period when prices were abnormally low or high. To be of any assistance or real use, it must be made as of a normal time and the unit cost applied thereto should extend over a sufficient number of years to show a normal trend of prices. To quote the language of former Justice Charles E. Hughes, acting as Referee in the case of Brooklyn Borough Gas Company *vs.* Public Service Commission (July 24, 1918):

" 'To base rates upon a plant valuation simply representing a hypothetical cost of reproduction at a

time of abnormally high prices due to exceptional conditions would be manifestly unfair to the public, and likewise to base rates upon an estimated cost of reproduction far lower than the actual *bona fide* and prudent investment because of abnormally low prices, would be unfair to the company. This question of taking the hypothetical reproduction cost under abnormal conditions as a rate base should, of course, not be confused with the necessity of recognizing actual cost of operation, even though abnormal. A public service corporation is entitled to be reasonably compensated for its service, and the actual cost of its operations must always be taken into consideration in determining whether or not it receives a fair compensation above that cost. But it is a different thing, after cost has been defrayed, and the question is as to the compensation to be allowed in excess of cost, to take as the basis for a compensatory return an asserted plant value, far above the actual investment, which is reached merely by expert estimates of a cost of reproduction under abnormal conditions. This would result in allowing a public service corporation to take advantage of a public calamity by increasing its rates above what would be a liberal return not only on actual investment, but upon a normal reproduction cost, in the view that unless it could make an essentially exorbitant demand upon the public it would be deprived of its property without due process of law. The enforcement of the constitutional guaranty does not require the application of any artificial formula. It has constantly been pointed out that the rate base must be what is called 'the fair value of the property,' and that as to this there must be a reasonable judgment based on a proper consideration of all relevant acts.'" (Citing many cases.)

The date adopted by the Commission in this case was as near a normal date as it was perhaps possible to get; the unit costs applied to the inventory were determined after a consideration of the trend of prices given by the witnesses, and the Commission added five per cent. to the entire reproduction cost of the physical property as found by its engineers. As already indicated by the quotation from the opinion of Judge Hughes, the fact that prices of labor and material on account of the war in Europe advanced to great heights with a rapidity and to an extent never before experienced from about the first of January, 1915, to the time of the valuation, has no bearing whatsoever upon the cost of reproduction as a factor in a valuation for rate-making purposes. The Commission would have committed a grave error, unjust to the public, and destructive of the value of the reproduction cost as an element in a valuation case of this character, to have attempted to find normal prices based upon either current prices as of July 1, 1916, or upon normal prices then or thereafter as claimed by the Power Company. Such a course would have greatly impaired the reproduction cost estimate as one of the elements of fair value. The adoption by the Commission of the date of July 1, 1914, as to which the inventory was to be made and normal unit prices applied, was reasonable and proper, and its action in so doing has the sanction of the highest legal and engineering authorities, which will be hereafter referred to in connection with reproduction cost.

On April 6, 1914, the act was approved by which $100,000 was appropriated, for the purpose of enabling the Commission to make the valuations required by paragraph 7 of the Public Utilities Law, and the Commission immediately proceeded to

effect an organization to enable it to perform its duties. It organized a valuation bureau to assist it in ascertaining the amount of money expended in the construction and equipment of the several public utilities in the District of Columbia, and also the amount of money it would require to replace all of the physical properties belonging to the same. The information thus acquired was of course to be considered by the Commission, in connection with other elements, in reaching its final conclusion as to the fair value of the several properties, this final conclusion not to be reached until after the hearing provided by paragraph 8 of the act, under which the public utilities affected would be entitled to present to the Commission all relevant and competent facts they desired to be considered before a final determination of valuation was made.

The Commission retained administrative control throughout the entire work.

The accounting division, upon which was imposed the duty of ascertaining as far as possible the amount of money expended in the construction and equipment of the several utilities designated by the Commission as "historical cost," consisted of Mr. Andrew Sangster, chief accountant, and a force of senior and junior accountants, varying from six to twelve, depending upon the amount of work in the course of completion.

The accounting work was not only done by experienced accountants, but was thorough and complete, as neither time nor expense was spared in an endeavor to show as completely and conclusively as possible the actual conditions as contained in the books of the company.

The engineering division of the valuation bureau was or-

ganized under the immediate direction of Mr. Charles L. Pillsbury, of Minneapolis, as chief engineer, to ascertain as nearly as possible the cost of reproduction or the amount of money it would require to reconstruct the physical property of the several public utilities and to determine the amounts of depreciation. Mr. Pillsbury was assisted in this work by a staff of twenty engineers.

The process and method by which the reproduction value was made is fully set forth by Mr. Pillsbury under the heading "Basis and Conclusions" (Record, pp. 89 to 109) with accompanying tables. Mr. Pillsbury's description of the manner in which the work was prosecuted and accomplished is set forth in the Record, pp. 110 to 115. He began this work May 1, 1914. The report on the Potomac Company was completed on December 1, 1915. The first step was the creation of an organization for the purpose of making a detailed inventory of the physical properties of the company, compiling it and arranging it, and for the purpose of applying the cost to the inventory, and so establishing a cost of reproduction valuation of physical property. The general nature of the organization and personnel of the staff is as shown in "Basis and Conclusions," which it is unnecessary to detail here. The record discloses that this work was thoroughly, competently, and impartially done.

The work of the valuation bureau was done substantially in accordance with the descriptions given by Mr. Sangster and Mr. Pillsbury. It may be here confidently stated that in the prosecution of this work the officials of the Potomac Electric Power Company lent no assistance. The Commission was engaged in the performance of an arduous and exacting public duty, and confronted with an intricate and compli-

cated problem. The property of the company consisted of land, structures, expensive machinery, and apparatus located in many different and widely separated sections, and with poles, wires, cables, and conduits making a network in the District, acquired from other companies, predecessors in interest, and by itself, from the year 1881 to the time of the investigation, a period of over thirty-three years. The books of account of the earlier companies were vague, indefinite, and incomplete. No standardized system of bookkeeping in accordance with modern methods had been used or adopted by the plaintiff until 1910, when the Interstate Commerce Commission's accounting classification was imposed by law. Every element of the situation and every sense of public duty should have suggested assistance to the Commission in its work.

An already complex and difficult situation was accentuated by the relationship between the company and the Washington Railway and Electric Company system in the joint use of portions of this property.

The Potomac Electric Power Company, for reasons of its own, and as stated by the witnesses, upon advice of counsel, not only rendered no assistance to the Commission in the performance of its public duty, but indulged continuously in a species of negative obstructions, which hampered and delayed the work and materially increased its cost to the public. The record discloses that the report made by Mr. Pillsbury to the Commission in his "Basis and Conclusions" was couched in more temperate and charitable language than the facts justified when he said:

> "While the officials and employees of this company were courteous in their dealings with us, unfortu-

nately the company, acting on the advice of its attorneys, declined to co-operate, and in most cases politely declined to furnish specific information regarding the property except as to ownership, where ownership was in doubt, and except as to such information as was afforded by the official books, records, and drawings on file in the company's offices, and which were open to our inspection. This peculiar and unusual attitude on the part of the company constituted a very serious handicap, materially increasing the cost and delaying the progress of our work and rendering it much more liable to error than would otherwise have been the case, especially in view of the incomplete nature of the available records and data" (R., 96).

This company was in the performance of a quasi-public duty possessing privileges granted to it by public authority for the public good and in the exercise of which it was earning large sums of money. It was under specific legal obligation and duty to furnish to the public reasonable and adequate service at fair and reasonable cost. Notwithstanding this, it took the position that it owed not the slightest obligation to the public to assist in any way in the ascertainment of any fact which would show or tend to show how its duty was being performed. Its attitude was and is that any inquiry by public authority into its affairs is an impertinent interference it is called upon to resent. If it wanted the truth known as to the cost and value of its property; if it believed that the facts surrounding its origin, development and growth afforded it a justifiable pride in its career, it made no voluntary effort to disclose the same.

The company said to the Commission in substance, *Here are the books and records, and there is the property. The*

information you desire from the books may be somewhere in them. Find it, if you can. The property is scattered all over the District of Columbia. Find it, if you can. No questions will be answered by us. Such was the attitude of the Potomac Electric Power Company.

An examination of the record will disclose the fact that this statement is not overdrawn. Mr. Justice Gould comments upon this phase of the case in his opinion (Rec., p. 54):

> "The record discloses not only that the power company in nowise assisted the Commission or its officers and assistants in making these ascertainments and estimates, but it indulged in a system of negative obstruction far from commendable; and while it may not have actually concealed the truth in any instance, it certainly put itself to no pains to advise the Commission of any facts relative to the extent, location or cost of its property."

On May 2, 1916, the Commission furnished the Potomac Electric Power Company a copy of the summaries of its ascertainment of the cost of reproduction new and of reproduction new less accrued depreciation of its property, in order that it might study the same preliminary to the hearing contemplated by the Commission in accordance with the law.

On May 18, 1916, the Commission passed its order, No. 182, fixing the date for the commencement of the public hearing as to the valuation of the property of the company in accordance with section 8 of the act, and gave notice thereof to the company.

The hearings continued from time to time until January 26, 1917, and after two and a half days devoted to argument

by counsel for the company the case was submitted to the Commission for decision on January 31, 1917.

The testimony consists of 6,221 pages of typewritten matter, and over fifty exhibits. The company submitted the report of Mr. Harold Almert on the cost of reproduction of the company's property, including all claimed intangible elements of value, consisting of 1,234 pages of typewritten matter, comprised in four volumes. It submitted no report of the historical or record cost of its property, but its comptroller in his testimony spoke at length upon that subject and presented many exhibits of figures taken from the books of the company. Six witnesses were placed on the stand by the Commission and fifteen by the company. The decision of the Commission was rendered on May 2, 1917, and is known as Order No. 208.

The Commission considered all of the testimony adduced by its own witnesses and those of the company.

The Commission's finding of $10,250,000 as the fair value of the company's property as of July 1, 1914, is—

(*a*) $1,322,936.28 greater than the amount found by its accountants as the historical cost of the property, undepreciated;

(*b*) $1,037,486.91 greater than the Commission's finding of the same item of value, or $2,680,078 greater if accrued depreciation be considered;

(*c*) $1,137,157.09 greater than the cost of reproduction, less accrued depreciation, as found by its engineers, and $761,737.23 greater than its own finding of the same element of value.

The Commission made its final determination as of December 31, 1916, and in so doing added every dollar which

the company had expended on capital account since July 1, 1914, at the prices actually paid therefor, amounting to $981,170.43, and found the total $11,231,178.43 as the fair value of the property.

Objections of the Company to the Commission's Finding as to "Historical Cost" and "Cost of Property Used and Useful for Electric Operations" and the Decree of Mr. Justice Gould Affirming the Same.

It is now in order to consider the objections of the company to that portion of the valuation work of the Commission which was devoted to ascertaining as nearly as practicable the cost of the property of the company used and useful for the convenience of the public in the District of Columbia and to the court's decree sustaining the Commission in this regard. The objections of the company to this phase of the work will be considered in the order in which they appear and as designated in the bill of complaint, par. 29, Sec. III—*a* to *s* (R., p. 21 *et seq.*), which appear in the transcript of record, pp. 21 to 27, inclusive. For convenience of reference cross-reference will be made to the numbered assignments of error as they appear in the transcript of record, pp. 62 to 68, inclusive.

The first objection is a general one, covering the entire matter in general terms. It is, briefly, that the Commission found the cost of the property within and without the District of Columbia used and useful for electrical operations as of July 1, 1916, to be $9,817,686.43, while the company claimed it to be $15,642,431.02, a difference of $5,824,744.59.

On January 30, 1915, the Potomac Electric Power Company, in accordance with law, reported to Congress, under the oath of its president, C. P. King, that the actual cost of its property to December 31, 1914 (the year in which the valuation was being made), was $11,655,070.30 (Document #1543, H. R., 63rd Congress, 3d Session). This amount includes among many other questionable items the interest of the company in the Great Falls power site, placed at $1,000,000; the sum of $1,977,150.63, a value added over night to the property when it transferred the property of the United States Electric Lighting Company to its own books, and the deduction of these two amounts alone, one representing property not even now claimed to be used and useful in the District and the other a stock-padding proposition of the most questionable nature, would leave a balance of only $8,677,919.67, which is $534,599.32 less than the $9,212,513.09 found by the Commission as nearly as practicable to have been the cost of the property up to July 1, 1914.

The amount now claimed by the company, according to its bill of complaint, as being the cost of the property as of July 1, 1916, is $15,642,431.02. Mr. Ham testified before the Commission (R., p. 795) that the total cost of construction and equipment as of June 30, 1916, was $14,607,039.64. It is evident, therefore, that $1,135,391.38 has been added by the company to the cost of construction and equipment since the case was closed, and this amount is of course included in the difference of $5,824,744.59, which it claims has either been improperly eliminated or not allowed.

For convenience of reference and in order to show the exact points of difference between the Commission's accountants and the claims of the Potomac Electric Power Company,

the final analysis of plant and equipment account by Commission's accountants, as appears in the order of the Commission and the summary of cost of property submitted by the Potomac Electric Power Company, as also appears, are here set forth (R., pp. 764 to 947):

Final Analysis of Plant and Equipment Account by Commission's Accountant (R., 944).

Expenditures on plant and equipment now owned:	
Cost of plant and equipment excluding general overhead charges	$7,649,576.81
Cost of moving or changing apparatus	32,076.67
Engineering and superintendence	95,637.40
Interest	399.45
Executive salaries, special services, etc.	91,965.21
Total expenditures on plant and equipment	$7,869,655.54
Loss on equipment sold, scrapped, or abandoned, less amount charged to operations.	388,953.85
Property, rights, franchises, etc., of United States Electric Lighting Co. of New York (1882)	200,000.00
Franchises, etc., of Potomac Light & Power Co. (1896)	208,189.50
Franchises, etc., of United States Electric Lighting Co. (1902)	1,977,150.63

Organization, etc., expenses of Potomac Electric Power Co. (1897-1899):		
Services obtaining loan from United States Mortgage & Trust Co. and securing contract for power for Eckington & Soldiers' Home Railway, paid in capital stock..	$550,000.00	
Discount and commission on issue of $650,000 bonds...	109,750.00	
Interest and discount on notes, etc.	14,543.63	
Legal expenses	8,492.90	
Installation expense	90,923.54	
Total organization, etc., expenses	$773,710.07	
Less: Installation expense included in plant and equipment	90,923.54	
		682,786.53
Settlement of interest on $650,000 5 per cent bonds, Washington Railway & Electric Co. (1903).....		132,500.00
Discount on $280,000 4½ per cent bonds, Washington Railway & Electric Co. (1903)		56,323.56

Services and expenses in connection with consolidated mortgage, contract for power supply, etc. (1903-1906):		
Engraving bonds	$8,500.00	
Audit of accounts, Jan. 1, '01, to Apr. 30, '04	1,123.85	
Legal expenses	1,027.56	
		10,651.41
Sundry interest charged to cable account (1899)		2,962.65
Total		$11,529,173.67

Summary of Cost of Property, Submitted by the Potomac Electric Power Co. (R., 947).

Fixed capital, plant, and equipment Dec. 31, 1909, devoted to operations		$9,355,619.28
Expenditures for plant and equipment since Dec. 31, 1909		2,778,727.73
Property abandoned		7,046.46
Investments—540 shares Electrical Testing Laboratories stock	$2,700.00	
Two-thirds interest in Great Falls water-power site	1,000,000.00	
Graceland Cemetery property	116,155.80	
Total investments		1,118,855.80

Unamortized debt, discount and expense...		201,174.42
Other expense, job work (work in progress)		9,420.29
Construction superintendence.....		524,807.69
General administration.....		322,013.32
Interest during construction.....		253,052.75
Cost of Potomac Light & Power Co.	$278,134.32	
Less amount included in plant account of the Potomac Electric Power Co.....	270,301.09	
		7,833.23
Difference between cost of I Street property and proceeds when sold.....		28,488.67
Total		$14,607,039.64

It will be noticed in the summary of cost of property submitted by the Potomac Electric Power Company that the fixed capital, plant and equipment December 31, 1909, devoted to operations is given as $9,355,619.28 and expenditures for plant and equipment since December 31, 1909, as $2,778,727.73 (R., 777). As this summary appears in Ham Exhibit #27, the addition of the above two items shows the total cost of plant and equipment as given by the company to be $12,134,347.01 as of June 30, 1916. This total amount, however, includes additions to the plant since June 1, 1914, of $605,173.34. This leaves an amount of $11,529,-173.67 and agrees with the Commission's figure as previously stated and as set forth in the above table. It is therefore not a difficult matter to determine what items appearing in the Commission's analysis were not considered in whole or in

part to be properly a part of the cost of this property, and what items claimed by the Potomac Company as entering into the cost of the property as set forth in the tables were not so considered by the Commission, and the added items set forth in the bill of complaint, the items amounting in all to $5,824,744.59.

This amount of $5,824,744.59 may be classified for convenient reference in three tables, the first table including the items set up in its final analysis of plant and equipment account by the Commission accountants hereinbefore referred to; Table #2 comprising the additional amounts set up in company's claim of property in accordance with the summary of cost of property submitted by it as hereinbefore set forth; and the third, Table #3, consisting of the additions made to the cost of property since the decision of the Commission was made. The tables are as follows:

I.

Loss of equipment sold, scrapped and abandoned, less amount charged to operation, $144,285.75, and $28,488.67, profit on sale of real estate	$172,744.42
Elimination of amount added to cost of property in transfer of property of United States Electric Lighting Company to Potomac Electric Power Company	1,977,150.63
Preliminary and organization expenses (stock issued to Crosby & Lieb)	550,000.00
Abandoned property	7,046.46
Total	$2,706,971.51

II.

Additional amounts set up in company's claim of property in accordance with its summary on preceding page:	
Investment in electric testing laboratory stock	$2,700.00
Graceland Cemetery property	116,155.80
Interest in Great Falls water-power site	1,000,000.00
Unamortized debt and expense	201,174.42
Engineering and superintendence	524,807.69
Miscellaneous construction expenditures	322,013.32
Interest during construction	(163,059.03)
Certain undisclosed items of intangible property claimed to represent part of the cost of the Potomac Light & Power Company	7,833.23
Total	$2,194,684.46

III.

Items added by bill of complaint since valuation was made:	
Amount representing materials, supplies, and working capital excluded by Commission	$234,125.36
Amount excluded for advertising, convassing, and soliciting	295,933.97
Items of betterments and improvements excluded	170,963.59
Amount claimed for exclusion of cost of installation of electric meters	38,013.98
Amount excluded, claimed to represent cost of lighting arresters	11,354.48

Amount excluded, claimed to represent cost of land at First street and Florida Ave., with interest	21,804.30
Amount excluded, claimed to represent cost of construction work in progress	7,833.91

The above items will be considered in the order in which they appear in the bill of complaint, which is also the order in which they appear in the above schedules, and as the elimination or exclusion has been made the basis of objection, the objections will be quoted from the bill of complaint as to each item as it is being considered, with cross-references to the assignments of error.

29 III (*a*) (R., 24).

Assignment of Error No. 27 (R., 65).

Claim for "Loss on equipment sold, scrapped, and abandoned, less amount charged to operation," $144,285.75, and other items also recorded on the books of the company and properly charged thereon to cost of property, which, with it, aggregate $172,774.42.

The Commission's accountants, in submitting their report of the historical cost of the property, deducted from the cost of used and useful property the sum of $388,953.85, which comprises the difference between the original cost of the property when installed and the amount subsequently credited to the plant account upon its retirement from service. The Commission in its consideration of the testimony restored many items to the plant account, amounting to $244,668.10, as shown on page 32 of order number 208.

This leaves a balance of $144,285.75 which the Commission has included in its ascertainment of the amount expended in the construction and equipment of the property, but which it has set up separately in the table on page 41 of its order number 208 from the cost of property used and useful for the convenience of the public (R., 960).

The amount now claimed by the company as erroneously eliminated, viz., $172,774.42, is composed of two items, the above amount of $144,285.75 and $28,488.67. This latter amount consists of profit on the sale of real estate and has been carried in the plant account and tended to reduce the actual investment. It is explained in detail in the testimony as follows (Rec., p. 283):

> "Mr. Sangster: We are referring to an item of $87,293.75. If we get down to the particular item probably I can explain it better. You will find, on page 543 of the report, that the company purchased certain lots or property at I street between 14th and 15th streets, northwest, costing $58,805.08; that they sold it for $87,293.75. This is the item which we referred to which I transferred from the general account. The profit there, though the company credited the cost of plant, I reversed and added it back to plant, the difference being $28,488.67. The adjustment you will see on page 36.
>
> "Mr. Ham: The company could with propriety have taken that difference of $28,488.67 to the credit of its profit and loss account?
>
> Mr. Sangster: Yes, sir; but it did not, so I made the adjustment in the plant account, and made a corresponding entry which would have that effect. While I did not, of course, suggest any profit and loss account, I adjusted the plant account. We have necessarily here a one-sided adjustment."

In order that the historical cost should be fully stated, this profit was taken out of the plant account and used to reduce the total amount to be eliminated by reason of other property included in the plant account that is not now in existence.

In order that the court may understand in detail why the accountants of the Commission originally excluded from the cost of used and useful property but not from the historical cost of property the sum of $388,953.85, of which sum the Commission thought proper to restore $193,677.35 and in addition to that added to said restoration the sum of $51,000.75, to be certain that no injustice was done to the company, the court is referred to the order of the Commission where these eliminations and restorations are explained in detail (Rec., pp. 949 to 960).

In view of the fact that the Commission's finding of "fair value" was $1,300,000 more than the historical cost as ascertained without depreciation, it is evident that no ultimate injustice was done the company in the treatment of the item.

Justice Gould in his decision (R., p. 54), thus treats this claim:

> "A great deal was said in the argument with reference to certain eliminations, amounting to $144,285.75. This amount is the residue of a considerably larger sum representing the cost of many items of property which, from the evidence, had disappeared from the tangible property of the Power Company or had become no longer used nor useful. It appears that the Commission, after weighing the power company's claims for the restoration of the entire amount originally eliminated by the Commission's accountant, did restore the larger portion, leaving the $144,285.75 referred to. These eliminations were justified by substantial evidence, and when it is remembered

that the fair value of the property of the plaintiff as found by the Commission as of July 1, 1914, is more than $1,300,000.00 greater than the amount found by its accountants as the undepreciated historical cost of the property, and over $1,000,000.00 in excess of the Commission's finding for the same item, it will be seen that no injustice resulted from this action of the Commission."

It was the opinion of the Commission that under certain circumstances losses of this nature should be treated as development cost. If, for instance, certain large expenditures on physical property had been made in good faith, according to sound engineering and managerial judgment and, as such, in the interests of the service; if comparatively soon after, before such property had served a reasonably normal life and before the company had been able to collect, through its rates, a reasonable amount of depreciation reserve or refund therefor, the property in question had to be abandoned or other construction adopted in its stead, either by reason of act of Congress or other regulatory body, or by reason of requirements resulting from revolution in or extraordinary development of the art, then, under such circumstances, a proper charge to capital as development cost would ensue. The Commission, however, found no evidence of such conditions in connection with the items now under discussion.

29 III (*b*), R., 24.

Assignments of Error 29, 30, 31 (R., 65).

In that the Commission in its findings on page 37 (R., 965), under the caption of "Franchises, etc., of the U. S.

Electric Lighting Co.," eliminated from cost of property of the company part of an amount recorded on the books of the company and properly charged thereon to cost of property, $1,977,150.63.

From the testimony of Ham (R., pp. 801-807-810) it appears that the Washington Railway and Electric Company owns all the stock of the Potomac Electric Power Company, and was such owner on the 30th of September, 1902. It owned all the stock of the United States Electric Lighting Company on the 30th of September, 1902. The stocks of the two companies were thus in a common ownership, and the boards of directors of all the companies were composed of the same persons. It appeared to have become advisable that some means should be found whereby the stock holdings of the Washington Railway and Electric Company and the Potomac Electric Power Company might be increased, and the following scheme was resorted to. A so-called sale was devised by which the Potomac Company was to take over the United States Electric Lighting Company in such a manner that the stock of the Potomac Company might be increased in the sum of almost two millions of dollars. In pursuance of this plan, the boards of directors, consisting of the same persons, appeared to have met and ostensibly sold the United States Electric Lighting Company to the Potomac Electric Power Company, such alleged sale carrying all of the property of every kind of the United States Electric Lighting Company, the Potomac Electric Power Company paying therefor, in addition to the book value of the property, a premium of $1,977,150.63. Thus the property was transferred from one pocket to the other of the Washington Railway and Electric Company and in the process acquired

an additional value of almost two million dollars, upon which the public is now asked to pay in perpetuity $140,000 a year under a 7 per cent return, and has been paying $200,000 under the dividends the Washington Railway and Electric Company has been paying to itself from its holdings in the Potomac Electric Power Company.

There is not a single element of a *bona fide sale* present in the entire transaction. There was neither an independent buyer nor independent seller, except under the flimsiest fiction. As well might an individual attempt to transfer his property from one pocket to the other and thus increase its value. The companies were not in competition and had not been for years.

It was stated by Mr. Ham in his testimony that the charter of the United States Electric Lighting Company was about to expire. The Court will take judicial notice that under the laws of West Virginia at that time its charter could have been extended by a resolution of its single stockholder and a certificate of the proper officials of the State of West Virginia at a cost of probably ten dollars.

The financial position of the United States Electric Lighting Company, as shown by its books at the time of this transaction, was as follows (R., 941):

Assets.

Plant and equipment	$2,081,959.75
Material and supplies	45,189.41
Bills receivable	54,467.85
Accounts and miscellaneous receivables	79,774.77
Cash	296,368.48
Total	$2,557,760.26

Liabilities.

Capital stock	$1,097,600.00
Surplus	175,249.37
Funded debt	650,000.00
Bills payable	572,618.12
Accounts payable	62,292.77
Total	$2,557,760.26

Some time later it was found that a sum of $279,465.79, which apparently was deposited with the Commercial Trust Co. of New Jersey, in reality had been distributed among the stockholders of the United States Co. as a dividend on August 29, 1902. This transaction arose from the fact that the whole of the construction expenditures for the year 1901, amounting to about the sum in question, had been charged to surplus and "was due to the fund belonging to the stockholders from the construction account." In order to repay that amount the company gave its note to the Commercial Trust Co. of New Jersey and distributed the proceeds.

To adjust the position as shown in above table the plant and equipment account should be increased by $279,465.79 and the current assets diminished by the same amount. Thus, in exchange for its capital stock of $1,097,600 and surplus of $175,249.37—that is, for its net assets of an aggregate book value of $1,272,849.37—the United States Electric Lighting Co. received $3,250,000 in stock of the Potomac Electric Power Co. There was accordingly paid a premium of $1,977,150.63, which was capitalized in the accounts of the Potomac Co. by stating the cost of the plant and franchises acquired as $4,059,110.38 and later augmenting this

amount by $279,465.79 on ascertaining the circumstances affecting the diminution in current assets of the business taken over. This result may be stated as follows:

United States Electric Lighting Co. Plant and Franchises.

Cost of plant and equipment as per United States Electric Lighting Co. balance sheet	$2,081,959.75
Add: Construction expenditures for year 1901 charged by United States Co. to surplus account	279,465.79
Total plant and equipment	$2,361,425.54
Cost of plant and franchises as per Potomac Electric Power Co. books	4,338,576.17
Increase in book value	$1,977,150.63

According to the testimony of Ham, the amount paid for the property was not excessive. He there states that in addition to the physical property acquired the purchase price also included the expense of organization, financing, promotion and development. This is no doubt true to a certain extent, but it is not believed that the company has been unjustly treated in setting aside this increased book value. Due allowance was made for early investments by including the cost of the Heisler Electric Company and the payment to the United States Electric Lighting Company of New York, amounting to $200,000, and by further allowing the cost of expired royalties and patents amounting to $65,266, all of which have been included in the finding of values of the property.

In his cross-examination Mr. Ham admits that the board of directors of the Potomac Electric Power Company who authorized the purchase of the United States Electric Lighting Company, and the board of directors of the latter company who sold their interests to the former company were, to all intents and purposes, the same individuals (R., 808):

> "Chairman Kutz: Who fixed the value of the property rights and franchises of the United States Electric Lighting Company when it was transferred to the Potomac Electric Power Company?
>
> "Mr. Ham: I should say the directors of the Potomac Company.
>
> "Mr. Syme: The directors of both companies were the same, weren't they?
>
> "Mr. Ham: I could not say; but for your purposes I think it would be safe to say they were about the same.
>
> * * * * * * *
>
> "Mr. Syme: When you say that Potomac paid what it thought was a fair price, the same board of directors were controlling the Potomac Company that were directing the Washington Railway Company and the United States Company, weren't they?
>
> "Mr. Ham: I think substantially the same.
>
> "Mr. Syme: Did any person not in interest make any appraisal of the property of this company which was to be bought—the United States Electric Lighting Company?
>
> "Mr. Ham: Not to my knowledge.
>
> "Mr. Syme: Was any outside concern called in to determine what was a fair price—a person who was impartial and simply wanted to fix a basis for a stock capitalization?

"Mr. Ham: Not that I know of.

"Mr. Syme: A mutual board of directors then, were the entire agency through which this was done?

"Mr. Ham: I think it is safe to say that the two boards of directors agreed upon this agreement of purchase or sale."

The amount paid by the Potomac Electric Power Company for this property was no doubt greatly in excess of its value. The fact that both companies were completely controlled by the same interests could not but have its effect on the transaction and the price at which it was transferred. When two separate and apparently competitive companies are operated by the same management, competition ceases and values may be established as regards inter-company transactions that may grossly misrepresent the actual condition. So that in finding fair value it is considered only equitable and just to disregard any such "over-night increases" in the book value of property, and especially when the books of the selling company so clearly state the actual investment at the time of transfer.

In considering the fair value of a property for rate-making purposes based on the actual cost method, it is necessary to exclude from such actual cost any increase in value on the transfer of property. The fact that a company acquires a property at a price nearly double its actual cost to the selling company is no justification for allowing the premium or increased cost to be included in an amount upon which a return is to be based. If this principle were to be recognized, and enough transfers made, the plant account would soon attain proportions that would not pretend to represent the actual cost of property.

The Commission has included this sum of $1,977,150.63 in its ascertainment of the amount expended in the construction and equipment of the company's property, but has set it up separately in the table on page 41 of order number 208 from the cost of property used and useful for the convenience of the public (R., 970).

It is interesting to quote here what Justice Gould has to say of this very interesting piece of high finance (R., p. 54):

> "Another item which the Commission refused and properly refused to allow in the historical cost of the Power Company's property was the sum of $1,977,150.63, being the amount added on the books of the Power Company to the cost of the property at the time of the absorption of the United States Electric Lighting Company by the Power Company."
>
> "It appears from the testimony that on the 30th day of September, 1902, the balance sheet of the United States Electric Lighting Company showed its cost of plant and equipment to be $2,081,959.75, to which was added certain construction expenditures charged to surplus account, in the sum of $279,465.79, making its total plant and equipment cost the sum of $2,361,425.54. This property was transferred to the Power Company and written on its books as costing $4,338,576.17. The property account was thus inflated in the sum of $1,977,150.63, for which stock was issued. This inflation of the property account of the Power Company was accomplished by means of a so-called sale of the property of the United States Electric Lighting Company to the Power Company. At the time of this transaction, the Washington Railway & Electric Company was the sole owner, not only of all the stock of the Potomac Electric Power Company, the plaintiff, but of all the stock of

the United States Electric Lighting Company, and the boards of directors of the latter companies were identical. Of course, no lawyer would argue for a moment that this transfer amounted either to a valid contract or sale. The common saying that 'it takes two to make a bargain' has an absolutely unshakable foundation in law; because it has been held in repeated cases that it takes two parties to make a contract (Gorham's Admr. *vs.* Meacham's Admr., 63 Vt., 231). By means of this so-called sale, conceived, conducted, and closed by identical Boards of Directors, the cost of the United States Electric Lighting Company to the Power Company was made to appear on the books of the latter as $1,977,150.63 more than was actually paid. The Power Company now seeks to capitalize this amount and to exact a return upon it. Regardless of the fact that it is exceedingly doubtful whether the United States Electric Lighting Company had the legal right to divest itself, without legislative authorization, of the property which it was using in the public service, this attempt to inflate the book value of the property of the United States Electric Lighting Company above the actual cost to the Power Company and charge such increase against the public ought not to be permitted from the standpoint either of law or justice. If this excess amount actually represented anything, it represented an attempt to capitalize, as against the public, the privilege or franchise to use the public streets of Washington for a public purpose which had cost the United States Electric Lighting Company nothing, so far as the evidence in this case shows. The Commission, therefore, did not err in refusing to countenance this transaction, and properly disallowed this item."

29 III (*c*). R., p. 24.

Assignment of Errors 31, R., 865.

In that the Commission on page 38 of its opinion, under the caption "Preliminary and Organization Expenses," eliminated from cost of property, an item recorded on the books of the Company and properly charged thereon to cost of property, $550,000.00 (R., 966).

This item represents the issuance in 1897 of $550,000 capital stock by the Potomac Electric Power Company to Crosby and Lieb, who at that time owned and controlled the company, for their services on behalf of the company in obtaining loans from the United States Mortgage and Trust Company amounting to $425,000 and for securing a contract for power with the Eckington and Soldiers' Home Railway Company. In other words, as stated in the Commission's order number 208, page 38, "the owners of the company voted to themselves this stock as a commission for negotiating a loan and securing a contract in the interest principally, if not exclusively, of themselves. Notwithstanding the fact that they had already organized the company upon a basis which there is reason to believe afforded them a generous amount of stock and that part of the property acquired by the new company was even then utilized for the purposes of supplying power to the same railway company, they thus sought to further benefit by their early participation in the fortunes of the company" (R., 966).

It is not evident that the company was benefited to any extent by the services performed or that they were in any sense "extraordinary." On the contrary, it would appear

that services of this character were no different than would be performed by the officers of a company in the regular course of business.

The Commission has included this sum of $550,000 in their ascertainment of the amount expended in the construction and equipment of the property, but have set it up separately in the table on page 41 of order number 208 from the cost of property used and useful for the convenience of the public (R., 970).

In passing upon this claim, Mr. Justice Gould said (R., 56):

> "The Power Company also claimed under the head of Preliminary and Organization Expenses, and as a part of the historical cost, the sum of $550,000.00, representing that amount of the capital stock of the Power Company issued to Messrs. Crosby and Lieb, for their services on behalf of the Company in obtaining loans from the United States Mortgage and Trust Company, amounting to between $400,000.00 and $700,000.00, the testimony being somewhat obscure as to the exact amount of the loan, and also for their services in securing a contract for power with the Eckington & Soldiers Home Railway Company. At the time of these transactions, Crosby and Lieb were the owners of practically the entire capital stock of the Power Company, and voted to themselves this $550,000.00 of stock as a commission for negotiating the loan and securing the contract. In the issue of the stock, they designated that it was for 'extraordinary services.' It does not appear from the evidence that the contract they secured, whatever may have been its nature, was of any value, and when it is considered that the sum of $109,750.00 was paid by the Power Company for discount and commission in se-

curing the loan, it is impossible to understand upon what theory this stock issued to Crosby and Lieb can be justified as a proper part of the historical cost of the Power Company. At the time they were practically the sole owners of the stock of the company, and were among its officers and directors, and whatever services they performed were not only not extraordinary, but were clearly within the line of their duty as such officers and directors. The principle of law which prevents a person standing in a fiduciary relation from making a profit at the expense of his *cestui qui trust* is too well established to justify me in making citations to support it. Under the evidence as to this transaction, the Commission was justified in excluding this sum in its ascertainment of the historical cost of the property."

29 III (*d*), R., 24.

Assignment of Errors 26 (R., p. 65).

In that the Commission on page 41 of its opinion ignored and excluded from consideration in summary Table 11 (R., 969), property properly recorded on the books of the company under I. C. C. Classification of Accounts No. 4, "Abandoned Property," and properly included in cost of property, $7,046.46.

This item does not represent the cost of any existing physical property. It was property that had gone out of existence prior to the period of valuation and could not be classified either as used or useful for electrical purposes or properly included in the cost of reproduction.

This particular amount which appeared as a balance to the account at July 1, 1916, the date of the company's claim,

represents the remaining one-fifth proportion of "depreciation prior to January 1, 1910, on a 2,000 kw. turbine returned to the General Electric Company in 1912." Although appearing in the books at July 1, 1916, as unamortized abandoned property, it entirely disappeared with the annual charge for 1916 made in December of that year, so that at the latter date this account had no balance.

As stated previously, this item represents no part of the cost of used and useful property and could not be considered as such by the Commission.

29 III (*f*), R., 25.

Assignment of Errors 23 (R., pp. 64-65).

In that the Commission ignored and excluded from consideration the investment in certain land described as Graceland Cemetery Property, $116,155.80.

This item represents an investment in an unimproved piece of property known as Graceland Cemetery, and its use is well described in the testimony of the vice-president and comptroller of the company (R., 749):

> "Mr. Ham: This item should be included in cost of construction and equipment. This is carried in investment account, instead of plant and equipment account, for the reason that the property was acquired, not for use in present operations, but in anticipation of future operations.
>
> "It is planned to use this property, known as the Graceland Cemetery property, as a shop, car house, store house and storage yards for the joint use of the Potomac Electric Power Company and the Washington Railway & Electric Company, of which the Potomac Company is a part.

"This property is extremely well located for such a purpose, having the right to haul freight over the lines of the Washington Railway and Electric Company east of 15th and H streets, northeast; said line having railroad connections with the Pennsylvania Railroad and the B. & O.

"Large pieces of property within the city limits are very difficult to secure, and the company must at times make provision for its future needs considerably in advance, in order that when the need arises the property will not have to be acquired at excessive prices.

"This company is also confronted with the possibility of the Government condemning the land located at 14th and B streets, used by it for power station, shops, offices, storage house and storage yards, garage and stable. A plan of condemnation by the Government has been frequently advanced, and in my opinion it will be eventually carried through."

There is not the slighest evidence to show that this property has even been used for a moment for any purpose by the company. At some indefinite time in the future, according to Mr. Ham, it may be used as a shop, car-house, store-house and storage yard; for the joint use of the appellant and the Railway Company.

The Commission was of the opinion that an investment of this character made far in advance of the needs of the present or of the immediate future and held partly for the benefit of another company should not be included in the amount on which this company should earn a return from the public. It is included by the Commission in its ascertainment of the amount expended in the construction and equipment of the property, but it is set up separately in Table 11 of order

number 208 from the cost of property used and useful for the convenience of the public. (R., p. 969.)

When this property becomes used and useful for the convenience of the public in the business of the company, if it ever does, it will be considered in the fixing of rates.

Mr. Justice Gould, in agreeing with the Commission's disposition of this claim, said:

> "The Power Company also claimed that it had a right to have included in its property to be valued as a part of its historical cost what is known as Graceland Cemetery, the valuation claim of which was $116,155.80. The evidence in the case discloses that this property had never been used for the purposes of the Power Company; that it had been acquired for the benefit of the Washington Railway & Electric Company, and was in fact, at the time of the hearing, being used for street railway purposes so far as it was being used for any purpose whatever. The Commission excluded this property in its finding of fair value, and in so doing committed no error." (R., p. 56.)

29 III (*g*), R., 25.

Assignment of Error 24 (R., p. 65).

In that the Commission ignored and excluded from consideration in summary Table 11 of its opinion investment in Great Falls Water Power Site, $1,000,000.00.

The evidence adduced before the Commission in November, 1913, "In the matter of the joint manufacture and sale of electric current by the Washington Railway and Electric Company and the Potomac Electric Power Company, formal case number 40," is printed in full in the "Hearing before

the Committee on the District of Columbia, House of Representatives, 63d Congress, 2d Session, on H. R. 14896, Separation of Electric Power and Street Railway Companies," copy of which is filed with this Court.

This investigation disclosed the following facts:

> "That the Washington Railway & Electric Company acquired 3,334 shares of stock in the Great Falls Power Company on November 26, 1902, and that for nearly 10 years the railway company retained these shares. No plant was built by the Great Falls Power Company, and the property was absolutely nonproductive. On May 27, 1912, the Washington Railway and Electric Company entered into a contract with the plaintiff, the Potomac Electric Power Company, setting forth an agreement between the two companies whereby the railway company pledged itself within one year to convey to the power company the two-thirds interest in the Great Falls power site in consideration of 10,000 shares of the capital stock of the power company to be issued and delivered to the railway company at the time of the execution of the contract. It was further agreed that the railway company would assign to the United States Mortgage & Trust Company as trustee 3,334 shares of the capital stock of the Great Falls Power Company, a Virginia corporation, as security for the faithful performance of the contract on the part of the railway company. The contract further provides that upon the failure of the railway company to comply with the terms of the contract within the period named the power company may return the 3,334 shares of stock of the Great Falls Power Company and require the surrender by the railway company of the 10,000 shares of the plaintiff, the Potomac Electric Power Company, or require the trust company to dispose of the 3,334

shares of the Great Falls Power Company for the benefit of the plaintiff as that company may elect. On May 21, 1913, the time of the contract was by mutual agreement extended one year" (R., 1027-8).

"The testimony shows, however, that the 10,000 shares of its stock have been delivered by the power company to the railway company, and that since such delivery the railway company has received (February, 1914) $105,000 in dividends from the stock. These shares were an additional issue of the company made for the purpose of the transfer, and the capital stock of the power company was increased from $5,000,-000, to $6,000,000 on account thereof. What consideration did the power company receive for such additional stock? Nothing but the obligation of the railway company to transfer to it within a certain time title to two-thirds interest in a power site, guaranteed by the deposit with a trustee of 3,334 shares of stock in the Great Falls Power Company, for which the railway company paid in 1902 $425,000 in cash, and which has been non-productive to date."

"But there is still another and more important point to be considered in connection with this transaction. The contract purposes that the railway company transfer an inert piece of property for its rights in which it paid $425,000 in cash, and which for a period of 10 years had not been a profitable investment to a subsidiary company, of which it owns all of the stock; and in return, even before the property is actually transferred, received stock to the par value of $1,000,-000, on which it has collected in one year $106,000 in dividends."

"Furthermore, the testimony in the present case (Dec. 15, 1916) shows that the respondents' title to this site has not yet been perfected, nor final transfer made to the company, although it has paid $475,000 in dividends on this stock since 1912.

"The ability of any corporation owning or controlling the interests of the Great Falls Power Company in this site to economically develop the water power in the near future is a matter of grave doubt. The report of the Assistant Attorney General, C. Edward Wright, dated February 1, 1909, being Appendix 4 to the report on the water supply of the District of Columbia and water power at Great Falls (H. R. Doc. No. 1400, 63d Cong., 3d sess.), introduced as evidence in this case, shows that there are two other owners of rights at Great Falls whose claims present a formidable obstacle to any immediate power development" (R., 1028).

"The first of these claimants is the Chesapeake & Ohio Canal Company, who have the right as successors of the original 'Potomack Company' under the laws of Maryland, 1784, to the perpetual and prior use of water for navigation purposes." (R., 1029.)

"The second claimant, and by far the larger, is the United States, which now owns considerable tracts of land at this site and has constructed a large dam across the Potomac River above the falls, by means of which the District of Columbia obtains its entire water supply. The United States has made several investigations of this site as a possible source of power for its uses in the District of Columbia, and even now has its development under serious consideration."

"It is the undivided two-thirds interest of the third claimant to power rights at Great Falls that is yet to be actually conveyed to the plaintiff, the Potomac Electric Power Company, in consideration of the $1,000,000 of stock issued by it in 1912. There are also the owners of the remaining one-third interest of the Great Falls Power Company to be considered, the value of whose holdings is not known and whose claims would undoubtedly further tend to delay the develop-

ment of this property. The testimony shows that the purchase of this undivided interest at that time (1912) by the Potomac Electric Power Company was primarily for the purpose of forestalling its acquisition by the United States (page 132, Hearing on H. R. 14896, referred to above), although subsequent testimony has been to the effect that the purchase was for purposes of future developments, when the price of coal might make it advisable and economical. This latter consideration should be given little weight in the face of the installation in the winter of 1916 of a new 15,000 kilowatt steam turbine unit at the main generating station of the respondent company" (R., 1029).

Although the expert witnesses introduced by the company were carefully questioned by members of the Commission, they were unable to throw any satisfactory light upon the value of these rights or to give evidence in any way convincing to the Commission that this water power could be economically developed for commercial uses (R., 1029).

The item of $1,000,000.00 is included by the Commission in its ascertainment of the amount expended in the construction and equipment of the property, but is set up separately in Table 11 of order number 208 from the cost of property used and useful for the convenience of the public.

Mr. Ham, in his testimony (R., 748-749), says:

"It was originally planned that this purchase (Great Falls electric power site) was for the account and benefit of the Potomac Electric Power Company, but at the time of purchase in 1902 the financial structure of the Potomac Company was not such as to make it possible for said company to make the

purchase. Consequently the purchase was made by the Washington Railway and Electric Company, and when later it became practical for it to be taken over by the Potomac Company, it was taken over in the way I have stated."

That Mr. Ham was in serious error in his statement is evident from the following extract from the minutes of the directors of the company under date of May 28, 1908, where Mr McDermott, president of the company, makes the following statement:

"At a period prior to the issuance of the new Potomac Electric Power Company's bonds the Stanley Electric Company, being about to have plans made for the improvement of Great Falls, in the Potomac River, and the development of those Falls to supply electrical power to Washington, I had a consultation with Mr. John Crosby Brown and other members of the voting trustees, and it was considered to the best interests of the Washington Railway and Electric Company that it acquire a controlling interest in the Great Falls Power Company. At that time the steam turbine had not been demonstrated to be the best electrical generator, and it was expected that if the Falls were developed there would be economy in getting our power from that source. I went over the matter very carefully and visited the Falls three or four times with several New York engineers, among them being Mr. O'Rouke, Mr. Pierce, and Mr. Edlow W. Harrison, a man of great experience in these matters. It was at first thought the power at the Falls could be developed for approximately $1,500,000.00. Mr. Reuben Shirreffs, an engineer, was engaged to make plans. The Stanley Electric Company undertook to pay Mr. Shirreffs; we to repay the Stanley

Electric Company if the contract for the improvement of the Falls was not awarded to that company. In this way about $20,000.00 altogether was expended, and it became clear, as further examination was made, that a cheap plant there would be dangerous. It would have to be erected on the island and subject to flood and freshet, and thus be in constant danger. It was discovered that to erect a proper plant it would cost a great deal more money than the Washington Railway and Electric Company could afford; furthermore, the Washington Railway and Electric Company has not the right to light the streets of Washington. The various estimates showed that a proper plant, capable of developing enough power to meet the needs of Washington as those needs stand today, and to meet the normal growth for say the next ten years, would cost between $3,000,000.00 and $4,000,000.00. It is evident that if any such plan is to be carried out, the expenditure should be made by a company which can fully utilize the power generated; not only for the operation of street railways, which is the only legal use to which the Washington Railway and Electric Company could apply the power generated, but it should be used for lighting and manufacturing purposes both in Maryland and in the District of Columbia.

"I take it that there is grave doubt as to the right of the Washington Railway and Electric Company to engage in this enterprise, and have therefore thought that the stock in the Great Falls Power Company now owned by the Washington Railway and Electric Company should be purchased by the Potomac Electric Power Company" (R., p. 812).

Following resolution adopted:

> "Whereas it is desirable that this company purchase from the Washington Railway and Electric Company 3,334 shares of the capital stock of the Great Falls Power Company for the sum of $610,000.00, being the cost to Washington Railway and Electric Company of said stock, with interest to June 1, 1908;
>
> "Resolved, That the officers of this company are authorized to receive said stock, * * * promissory note of this company payable on or before June 1, 1913, and bearing interest at 6%, being given in payment."

This minute does not appear to have been formally in evidence before the Commission. It is taken directly from the books of the company, and its mention here is subject to any objection the company may see fit to make.

No action appears to have been taken at this time and it was not until May 27, 1912, that the company entered into the contract hereinbefore referred to, by which a million dollars in stock was paid for an interest to which it has not yet even acquired the legal title, and for rights which are not only not now used and useful in the production of its product, but never have been and may never be. A few of the decisions of the courts and commissions where this question of investment in advance of present needs has been considered are here referred to.

In the case of Spring Valley Water Co. *vs.* San Francisco, 165 Fed., 667, 697, decided October 7, 1908, District Judge Farrington said:

> "It is not just to compel consumers to pay for more than they receive, or to pay complainant an income on property which is not actually being used in

gathering and furnishing water. If in this case the company, in anticipation of the growth of the city and its future needs, acquired property for future use at a cost of hundreds of thousands of dollars which is now worth millions, it has acted wisely, but it should be satisfied with the goodness of its bargain and the enhanced value of its property, without asking in addition gratuities from its customers in the way of higher rates. When the property does come into necessary service, the company is entitled to have it credited at its then fair and reasonable value for rate-fixing purposes."

As a result of the above hearing a preliminary injunction was granted against the enforcement of the ordinance of fixing water rates. The same judge in 1911 made the injunction permanent and in the valuation approved these unused lands and water rights were again excluded.

(Whitten, vol. 1, p. 197.)

The case of F. G. Campbell *vs.* Hood River Gas and Electric Company, P. U. R. 1915 D, 855, would seem to particularly apply to a situation such as this. In this case it was held that "in the valuation of the property of a hydro-electric company for rate-making purposes, riparian land and the right to use the flow of the stream incident thereto beyond the amount actually used and useful for the convenience of the public were treated as non-operating property, and a tract of land constituting a power site for possible future development, but not used for the convenience of the public, was not included as a part of the operating property of the company."

The case of Potee *et al. vs.* The Brooklyn and Curtis

Bay Light & Water Company, P. U. R. 1915 A, 42, holds that "present users cannot be expected to pay a rate sufficiently high to yield a fair return on the money invested in excess of the amount necessary to properly provide for the present consumption."

It is difficult to understand how the claim can be made that, under the circumstances of its acquisition and holding, the consumers of electric energy in the District of Columbia could justly be called upon to pay $60,000 or $70,000 annually to support a property, or rather a claim to a use of property, which never has been, is not now, and perhaps will never be in service for their benefit, and the decisions quoted and many others amply sustain Judge Gould in saying as to this item (R., p. 55):

> "The Power Company also claimed that it had a right to the allowance, as part of the historical cost of its property, of the sum of $1,000,000.00, representing what it paid in its stock for certain water rights at what is known as the Great Falls power site. It is a significant fact that these rights to this non-productive property were not only previously acquired by the Washington Railway & Electric Company and held by it for twelve years before it transferred them to the Power Company, but that title, up to the time of the hearing in this case, had not been perfected, either in that company or in the Power Company. It is also worthy of notice that shortly before the Public Utilities Law was enacted the Washington Railway & Electric Company and the Power Company, acting through identical boards of directors, consummated a transaction by which these rights were transferred to the Power Company for $1,000,000.00 of the stock of the latter company. This

power site is located outside of the District of Columbia. It has never been used for the purpose of supplying power to those who use electric current in the District of Columbia, nor is there a scintilla of evidence in the record that it ever will be so used, by the Power Company. Its actual value is problematical, and the ability of a private owner of power rights at this site to develop them is further complicated by the larger Federal Government's interest therein. No witness who claimed to have any knowledge on the subject testified as to what the value was. For these reasons, there was no justifiable theory upon which the $1,000,000.00 of stock issued for it by the Power Company could be treated as an actual value of $1,000,000.00 upon which the Power Company would be entitled to collect revenue from its patrons in the District of Columbia. The Commission, therefore, did not err in excluding it, either as an item in the historical cost of the property, or in the reproduction cost or in its finding of fair value."

29 III (*h*), R., 25.

Assignment of Error 25 (R., p. 25).

"Unamortized debt, discount and expense," $201,174.42. This item represents the balance of "debt discount and expense" account appearing in the books of the company as unamortized. It is in addition to the amount of $166,073.56 allowed by the Commission to remain in the cost of used and useful property (see Table 11, page 41, of order number 208 (R., pp. 969-970) "Discount on Bonds"), where it was originally included by the company during the years 1897 and 1903, as stated on page 38 of the Commission's opinion

and order number 208. This claim of $201,174.42 is not a proper charge to cost of property or to cost of operation, but its yearly proportion may be considered in the fixing of rates as an amount necessary to be earned in addition to operating expenses, before allowing net return on the investment and it was so considered by the Commission.

The company is now, and has been since the bonds were issued, setting aside yearly a portion of its revenues to cover this amount, and allowance has been made by the Commission for this annual expense in its consideration of rates.

Justice Gould fully endorsed the position of the Commission as to the proper treatment of an item which, because of its nature must be gradually amortized and not become the basis of a permanent charge against the public and in so doing said:

> "A careful examination of the opinions of experts who have made a study of the accounts of public service corporations convinces me that this is neither a proper charge to cost of property nor to cost of operation, but that it should be taken care of in the fixing of rates to be charged by the power company in such a manner that it will finally disappear" (R., 56).

29 III (*i*), R., 25.

Assignment of Error (R. 18, p. 64).

"Engineering and Superintendence," $524,807.69.

By the act of Congress of March 1, 1901 (31 Stat., 831), the electric and gas light companies of the District were required to file with the Commissioners annually thereafter a

statement showing their receipts and expenditures for the previous fiscal year.

By the act approved July 1, 1902, all gas, electric lighting, and telephone companies were required to make affidavit to the Board of Tax Appraisers annually as to the amount of its or their gross earnings for the preceding year and were taxed four per centum thereon and by the act of Congress approved March 2, 1907, it was provided:

> "That any company, association or corporation engaged in the manufacture and sale of electricity for illuminating or heating or power purposes, or either, in the District of Columbia, through its President or other duly authorized officer, shall make a sworn statement to Congress annually, on or before the first day of February in each year. Said report shall contain a detailed statement of the condition of the business of said company, association or corporation for the year ending December thirty-first next preceding, and such statement shall set forth the actual cost and also present value of the property of such company, association or corporation used in the conduct of its business, the amount of paid-up capital stock, the amount and character of indebtedness of such company, association, or corporation, the amount and cost of materials used in making electricity, the quantity of electricity manufactured, the quantity of electricity sold, the amount received per annum for each public arc light, the amount received per kilowatt for each public incandescent light, the average price received per annum for each arc light furnished to others than the public, the varying discounts allowed to consumers using arc lights during a part of or the entire night, the average price charged per kilowatt for incandescent lights furnished to others than the

public, with the varying discounts, and the price charged per kilowatt-hour for power or heat furnished, and the gross revenues from each source, the revenues from all other sources, the extensions and improvements made in the plant and works, the actual cost of the same, the amount expended for labor, the amount set aside for depreciation, the amount set aside for insurance and renewals, the amount paid out of earnings for betterments, the amount paid for betterments from other sources, the amount set aside and paid in interest and dividends, the surplus after paying the operating expenses and fixed charges, *the statement of the operating expenses to be itemized and classified as is done by other public utility corporations in the District of Columbia,* the names of the stockholders and the amount of stock held in such company, association or corporation by each of them on December thirty-first next preceding the date of such report. Any such company, association or other corporation, not later than the fourth day of December in the year nineteen hundred and seven, shall make to Congress a sworn report in accordance with the requirements of this provision and showing the condition of its business as near as its present method of bookkeeping will permit for the year ending December thirty-first, nineteen hundred and six."

There can be no question that Congress required this elaborate information annually from this company for but one purpose, and that was to be sufficiently advised to determine whether or not the rates charged for electric energy were fair and reasonable. The company was required to report its operating expenses in great detail. It is too apparent for argument that the greater the operating expenses were reported to be, the less likely Congress would be to lower the rates for electric energy. It is too apparent to need argu-

ment that every dollar of operating expenses was taken from the public in the rates charged, and that the public has paid out of its own pocket every cent of these operating expenses. It is sought now by the company to endeavor to capitalize a portion of the operating expenses already paid by the public and make such capitalization a basis for an additional charge upon the public for all future time. Such is the result hoped to be accomplished when it is sought to remove the above item of $524,807.69 from operating expenses and charge the same to engineering and superintendence through the adroit manipulations of Mr. Ham. Such is the result attempted to be accomplished in an endeavor to remove from operating expenses $322,013.32 and charge the same to miscellaneous construction expenditures in the succeeding item.

The company introduced in evidence Ham Exhibit No. 34 which is claimed by witness Ham to be a computation of the amount included in operating expenses for departmental supervision, inspection, and expense which should properly be included in the cost of construction and equipment, and is an analysis of these expenditures for the year 1915. The witness pretends to show by this analysis that of the total amount expended for construction work during that year 13 per cent was for "engineering and superintendence," the classification under which the several items of expense enumerated above are grouped. Taking this percentage, derived from an analysis of the construction expenses of one year, the company, in the words of witness Ham (R., p. 816) "used the same percentage as applied to the total expenditures of that character back to the beginning." The company then introduced Ham Exhibit No. 35 which shows the cost of construction work done under the supervision of the construction departments, amounting to $4,036,982.20,

and covering a period of 20 years from September 30, 1896, to June 30, 1916. The company then applied the 13 per cent obtained by the analysis of the accounts of the one year, 1915, to this total amont expended for construction work for 20 years and obtained the amount of $524,807.69. The Commission introduced in evidence a statement prepared by their statistician showing a similar analysis of the construction accounts for the year 1911 (R., p. 922). The Commisson's witness stated "that, following the same methods and taking the same accounts for the year 1911, the percentage figured out to be a little over 7½ per cent—about 7.57 per cent—as compared with 1915." Questioned by the company as to whether he had not picked out a year that would show a low percentage, he stated, "I picked it out to show, for instance, that 13 per cent could not be applied to every year and that 1915 was not what I would call an average year to be applied back to 1896."

It has not been the practice of the company to apportion to the plant account on any uniform basis overhead expenses of this nature, as shown by the following testimony of its witness (R., p. 817).

> "Chairman Kutz: You have reported to the Commission, have you not, in the last two years, for the year 1915, at least, the amount of new construction?
>
> 'Mr. Ham: Yes.
>
> "Chairman Kutz: And the amount so reported did not include these overheads?
>
> "Mr. Ham: That is right.
>
> "Chairman Kutz: Why not?
>
> "Mr. Ham: Because it has never been the policy of the company to add these overheads to the cost of construction."

The company for over fifteen years has made annual sworn returns to Congress of its operating expenses and profits. If it had reported lower operating expenses—and consequently higher profits, because of a larger apportionment of overheads to construction—the demand outside of and within Congress for a reduction in the rate of charges to consumers would undoubtedly have been much greater than it has been and might have led to legislative action. Having enjoyed, beyond recall today, the benefits of the apportionment the company has made between operating expense and construction, it is obviously unfair to the public to rewrite the books in this respect so as to swell the present capital account and thereby reduce the apparent surplus earnings over and above a fair return.

The Commission has allowed in its finding of the amount expended in the construction and equipment of the property the full amount charged by the company for engineering and superintendence as it appears upon its books, namely, $95,637.40 (pages 33 and 40, order number 208, R., p. 969). The claim for the larger amount is merely an attempt to capitalize certain operating expenses alleged to have been incurred by it and which was by it charged to operating expenses, and no evidence was adduced to show that this item was improperly carried on its books as an operating expense.

29 III (*j*). R., p. 25.

Assignment of Error 18, R., p. 64.

Claim for "General Administration," $322,013.32 (R., 783-785).

By the introduction of "Ham Exhibit No. 36" the Company pretends to show that after making certain deductions from the total expense for general administration for the period from 1900 to 1916 there is left a net amount of $1,152,857.91, which it is now claimed should be apportioned in some way between the cost of operation and the cost of construction. To arrive at the proper proportion, the company introduced "Ham Exhibit No. 37," purporting to show the total operating expenses for the same period from 1900 to 1916 to be $6,927,854.60, and the total expenditure for physical property, after making certain allowances, to be $6,440,266.39 for the same period. The company then ascertains that the percentage of construction expense to the total expense for operation and construction is 48 per cent. It then prorates the net amount for general administration for this period ($1,152,857.91), according to this percentage, obtaining an amount of $553,371.80 which it claims could properly be added to the cost of construction. The company hesitates to add so large an amount for such expenses, and therefore arbitrarily assumes that 5 per cent of the cost of construction would be more conservative. The cost of construction shown by Ham Exhibit No. 37 is $6,440,266.39 and 5 per cent of the amount is $322,013.32, the amount claimed under this paragraph.

This is merely another attempt to rewrite the company's books and capitalize certain operating expenses. The Commission has allowed in its finding of the amount expended in the construction and equipment of the property the full amount charged by the company for executive salaries, special services, etc., as it appears on the books, namely, $91,965.21 (pages 33 and 40, order number 208; R., 961-969).

The reasons for excluding the balance of the claim of the company, for items of this nature, are fully set forth in the preceding paragraph under the heading of "engineering and superintendence."

29 III (*k*). R., p. 25.

Assignment of Errors 18, R., p. 64.

Claim for "Interest During Construction," $163,059.03. The company's attitude towards this claim is shown in the following statement of its witness Ham (R., p. 785):

> "The Company has included in its cost of construction and equipment no interest during construction since the year 1903. There is no doubt that money has been spent for interest, and that an amount should be added to the cost of construction and equipment as recorded in the books of the company, to cover interest during construction. It is, however, difficult to say with fairness what this amount actually is.
>
> "One of the things that has inured to the great benefit of the Potomac Electric Power Company is the financial support of the Washington Railway and Electric Company. For instance, the ordinary way of providing money for construction purposes is for a company from time to time, as financial conditions are opportune, to sell enough bonds to supply them with funds to carry on construction for a certain period in the future.
>
> "At times this company has done this, selling bonds enough at the beginning of the year to carry it perhaps twelve months or more in the future, but at other times instead of doing this, they have gone

to the Washington Railway and Electric Company and borrowed money as they needed it.

"It is impossible to ascertain what is the exact sacrifice of interest chargeable to construction. Sometimes the money has been provided from the sale of bonds, as previously stated; sometimes it has been secured by loans from the Washington Railway and Electric Company, and sometimes it has been provided, as at the present time, directly out of reserves and working capital. There is no doubt that the money has been spent for interest and that an amount should be added to correctly state the cost of construction; but I admit my inability to state with exactness what this amount is, but believe that an addition of from 4 to 5 per cent on the amount of actual expenditures for construction from 1905 down to date would be a fair allowance."

Owing to the piecemeal method by which a considerable part of the extensions to the plant of the company has been constructed, it is certain that there would not be occasion for systematic borrowing at every step. Much of the smaller extensions would be financed by funds available from surplus earnings; nevertheless, it is not denied that the funds for the greater part of the construction work could only be obtained by borrowing from outside sources.

To make an allowance for this claim it is necessary to determine the average period of time which would elapse before the property could be brought to the point of producing revenue. The company claims that eight months would be a fair estimate for this purpose, which, at the rate of 6 per cent, would produce an equivalent of 4 per cent on all construction. It is well known that in the case of power-station

equipment most of the apparatus is purchased under contract, the final payments being withheld until the apparatus is in effective operation. About one-third of the plant reckoned on money expended, is therefore installed under circumstances which tend to show that, with proper engineering foresight, the company would not be called upon to pay for its equipment in installments on the average more than six months at most before producing revenue. Land and buildings, representing an investment of slightly over $1,000,000, would, of course, cover a longer period. But the distribution system, including services, transformers, meters, etc., which constitutes the remainder of the investment, would probably cover a much shorter period, owing to the gradual rate of growth of this part of the plant.

The Commission has allowed for interest of this nature the total recorded on the books of the company, amounting to $150,006.28, and an additional sum of approximately $90,000, making a total of $240,000 (R., 969). The amount claimed in this paragraph represents the difference between company's estimate and the Commission's allowance.

29 III (*m*). R., p. 26.

Assignment of Errors 28, R., p. 65.

Materials and supplies and working capital, $234,125.36.

The amount allowed by the Commission in its ascertainment of the cost of construction and equipment of the property for materials and supplies is $128,893.08 (R., pp. 969-970), which represents the actual ledger balance in that account on the company's books as of June 30,

1914. This ledger balance did not cover several items of materials on hand, such as bicycles, testing equipment, small tools, etc., and in order to include these the Commission made an additional allowance of $21,106.92 under the head of "Tools, testing equipment, etc." (R., pp. 969-970).

The amount necessary for the working capital of a utility may be computed by various methods. From an accounting point of view working capital is obtained by a study of the current assets and liabilities, the difference between the two ordinarily showing the actual condition.

Another method in common use consists of allowing one-eighth of the annual operating expenses of the utility. This is calculated on the theory that as its customers pay their bills on or before the 15th day of each month, it would take one and one-half months before the utility could avail itself of current revenues, and that it would be necessary to provide operating funds for this period.

The Commission followed the latter method.

Excluding taxes, one-eighth of the average annual operating expenses of the company for the years 1910 to 1914, inclusive, amounts to $92,168.57. With cash working capital at $135,000, this would leave $42,831.43 for extensions, etc. The Commission was of the opinion that this was ample.

Allowances for working capital, materials and supplies are estimates at best, resting largely in opinion and judgment, and the Commission in making such allowances considered the question from every standpoint and made a fair and reasonable allowance. The item claimed is the difference between the allowance made by the Commission and the amount claimed by the company and represents simply a

difference of opinion and method between the two parties. Moreover, the figures presented by company's witness, Ham, covered a period after the date of the Commission's findings of the historical cost as well as before that date. The later period included some very abnormal cash balances, that tended to make a much larger showing of working capital needs than would ordinarily result (R., pp. 795-798, 819-821).

29 III (*n*). R., p. 26.

Assignment of Error 18, R., p. 64.

Advertising, canvassing and soliciting, $295,933.97.

According to the Interstate Commerce Commission classification of accounts, expenses of this nature are treated as operating expense and not as capital charges. They form no part of the amount of money expended on physical property. Reference is made to the "Uniform system of accounts for gas corporations and electric corporations in the District of Columbia as prescribed by the Interstate Commerce Commission" and adopted by the Commission.

"E. 211. Advertising.

"This account includes salaries and expenses of the advertising manager and clerk; cost of commercial advertising, including booklets, dodgers, newspaper advertising, posters, bulletins, and similar items.

"E. 212. Other Commercial Expenses.

"This account includes the cost of canvassing, soliciting, promotion, development, and other commercial expenses not provided for elsewhere."

It is apparent that the company gave this question considerable attention before adopting a policy which it has continued to follow to the present time (R., p. 794). In the final table submitted by it showing the cost of construction and equipment, no claim was made for the cost of installing meters. Inasmuch as these charges in the past have been included by it in operating expenses, the Commission did not believe that the accounts should now be restated or rewritten, and they have accordingly excluded this claim.

29 III (*q*), R., 26.

Assignment of Errors 18, R., p. 64.

"Line Transformers and Devices," $11,354.48.

The greater part of the cross-examination conducted by the company's counsel on the subject of Line Transformers and Devices was an endeavor to establish the fact that a false basis had been used by the Commission in arriving at not only the number of transformers owned by the company but their corresponding cost. As stated by the Commission's witness, the number and size of the transformers were obtained from an inventory submitted by the company in response to the witness' request. The contention of the company was that this inventory was incomplete and did not represent the actual transformers owned. This was not proven in any way, however, and the subsequent testimony given by the company's witness in his direct examination produced no additional information as to its alleged incompleteness.

The Commission believed that the accounts of the com-

pany did not fully represent the full cost of "devices" included under the heading of "line transformers and devices" and in order that every meritorious claim may be accorded consideration, as has been done in all other instances where uncertainty and doubt exist, the Commission has added to the plant account $16,298.60, making a total of $149,733.77, as per Table 11, pages 40-1, of order number 208 (R., p. 969).

29 III (r), R., p. 26.

In that the Commission excluded from summary Table 11 items recorded on the books of the company representing the cost of land at First street and Florida avenue and the interest thereon, $21,804.30.

The land referred to in this claim was purchased in 1908 at a cost of $21,404.85, and is located at Florida avenue, First street, and New York avenue Northeast. It is not used by the company at the present time, nor does it appear ever to have been used by it or to be susceptible of use by it in its business. The tracks of the City & Suburban Railway Company run through the property, and other improvements consist of a small shack and a two-story brick building, the building being used as the office of a transfer company.

The Commission has included it in its ascertainment of the cost of the construction and equipment of the company's property, but has set it up separately from property used and useful for the convenience of the public (Table 11, page 41, order number 208, R., p. 969).

tion cost either new or with accrued depreciation was the *only* basis upon which fair value should rest. Many courts have held that it had but little value and some courts have rejected it altogether. At the very best, it is a theoretical, uncertain, and speculative thing, unstable under the most normal conditions and utterly unreliable in the conditions which have obtained in the last three years. The inventory in reproduction costs can be made very accurately. The uncertainty rests in the application of units costs and methods of construction in which the judgment of the best engineers widely differ, and in estimates of overhead charges, frequently based upon different hypotheses, and so widely at variance as to afford little foundation for the finding of fair value.

The Missouri Public Service Commission, in the case of the Kansas City Electric Light Company (P. U. R. 1917 C, 754), having property valued at about seven million dollars had before it, in considering reproduction costs, the reports of its own engineers as of December 1, 1914, and those of the company as of February 1, 1914, and to these added the capital costs up to the date of December 31, 1915, and with this data found the reproduction cost as of December 31, 1915, and used the same with the full concurrence of the company's engineers in finding "fair value" as of March 17, 1917, the date of the decision.

Wisconsin Supreme Court.

Duluth Street R. Co. *vs.* Railroad Com.

Decision Rendered June 1, 1915.

This was an action to set aside an order of the Commission requiring the railway company to sell six tickets for twenty-five cents.

> "The inventory made by Ford, Bacon and Davis, in 1900, was used as a starting point, and a value of $451,197 was placed on the property inventoried by them. To this amount was added the cost of additions from the time that inventory was made until the time of the hearing (January 16, 1912), which was ascertained to be $285,865."
>
> (P. U. R. 1915D, 192.)

The court said:

> "The Commission seems to have taken into account every kind of property, tangible and intangible, which should be considered in fixing a valuation. No doubt the reproduction cost was considered a very important item in arriving at the value of this plant, and, we think, correctly so. But the value was not fixed on the basis of what it would cost to reproduce the plant. We think the Commission did not adopt an erroneous theory as to how value should be fixed and that its finding on value is fairly sustained by the evidence."

Judgment affirmed.

but accepted by applicant, it seems sufficently conclusive to definitely place the depreciated reproduction cost of applicant's property used and useful in supplying the Los Gatos District at $171,188, as of the date when such estimate was made, January 1, 1914. Net additions to capital investment bring this figure to $172,886.32, as of January 1, 1915, and $178,286.32, as of January 1, 1916, according to data submitted by applicant. It is hereby found that the rates of this company are unjust, unreasonable or insufficient."

(P. U. R. 1915E, p. 714.)

Idaho Public Utilities Commission.

Sandpoint *vs.* Sandpoint Water and Light Company.

Decision Rendered October 2, 1915.

"The decision in this case has been delayed for many reasons, among which may be mentioned changes in the personnel of the Commission and the pendency before the State Supreme Court of cases involving decisions as to certain questions pertinent to this case, it being agreed that if the Commission would defer decision in this case until the court should decide certain questions pending the delay in deciding this case, it might save the larger expenses to the parties herein incident to an appeal to the Supreme Court from a decision in this case. The questions referred to now having been decided by the court, this case comes before the Commission for decision. The Commission found the value of the physical property at date of hearing (June 22d, 1914), to be $100,293, and the additions to June 30, 1915—$32,453.39. The adoption of the cost of reproduc-

tion new as a basis of value in this case we believe to be just and equitable. After full consideration of all the evidence and data submitted, the Commission finds that the rates and charges of the defendant for water supplied by it to its patrons are unjust, unreasonable, discriminatory and preferential."

(P. U. R. 1915F, pp. 449 and 470.)

Maryland Public Service Commission.

In re Chesapeake and Potomac Telephone Company.

Decision Rendered on March 8, 1916.

The depreciated value of a telephone system, as a factor to be considered in rate-making, was fixed by deducting the accrued depreciation from the cost of reproduction new.

"That the fair value for rate-making purposes of the property of the Chesapeake and Potomac Telephone Company of Baltimore city in this State was $11,554,758, on June 30, 1914—the date of the inquiry in this investigation."

(P. U. R. 1916C, p. 929.)

Some of the more recent cases holding that reproduction estimates to be of any value whatsoever as a factor in ascertainig fair value must be made as of a normal time when prices are neither unusually depressed or inflated are the following:

Michigan: City of Holland *vs.* McGuire, P. U. R. 1920, B. No. 1, p. 140.

Penn.: Fox *vs.* Pine Grove Electric Company, P. U. R. 1920, C. No. 281.

Missouri: *In re* St. Joseph Railway Company, P. U. R. 1920, C. No. 3546.

W. Va.: *In re* West Virginia Water & Electric Company, P. U. R. 1920, D. No. 2, p. 409.

New York: N. Y. Supreme Court, Kings Co. Lighting Company vs. Lewis, P. U. R. 1920, D. No. 1, p. 145.

New York: Whitehead *vs.* Niagara Falls Gas & Electric Co., P. U. R. 1920, C. No. 2, p. 265.

Wisconsin: *In re* Milton & Junction Tel. Co., P. U. R. 1920, C. No. 1, p. 111.

Illinois: *In re* Public Power Company, P. U. R. 1920, E. No. 4, p. 711.

Vermont: Milne *vs.* Montpelier and Barre Light & Power Co., P. U. R. 1920, E. No. 3, p. 559.

Maryland: *In re* C. & P. Telephone Co., P. U. R. 1920, F. No. 3, p. 459.

Nevada: *In re* Southern Pacific Co., P. U. R. 1920, F. No. 4, p. 775, quoting Justice Hughes in Brooklyn Borough Gas Co. *vs.* Public Service Com., N. Y., P. U. R. 1918, F. 335.

Georgia: *In re* Georgia Ry. & Power Co., P. U. R. 1921, A. No. 1, p. 165.

Virginia: Before Virginia State Corporation *in re* Lynchburg Traction and Light Co. Unit costs were allowed between the years 1900 and 1915, to ascertain reproduction cost. Decided August 6, 1921. P. U. R.-E. 1921, p. 92.

New York: New York Public Service Commission. Buck *vs.* N. Y. Telephone Co. Appraisal for reproduction cost made as of December 31, 1914, and additions at actual cost made thereafter. Opinion rendered October 27, 1921.

New York Public Service Commission *in re* N. Y. State railways. P. U. R. 1922-B., p. 78. Commission sustained the use of pre-war reproduction cost as an element of fair value, saying: "It would be grossly unfair to the public to use the extraordinary dislocation in prices due to the World War as the ground-work for the fixation of a proper rate base."

Virginia: Virginia Corporation Commission *in re* Culpeper Telephone Company. P. U. R. 1920-D., p. 307. To find reproduction cost unit prices were applied based on average prices from years 1912 to 1916. Actual additions since that date at actual cost were allowed.

West Virginia: West Virginia Supreme Court Appeals, City of Huntington *vs.* Public Service Commission, 110 S. E., 92. Reproduction new less depreciation was determined as of January 1, 1915. Additions thereafter made at actual cost. Opinion rendered December 14, 1921.

The Court's attention has heretofore been called to the opinion of ex-Justice Charles E. Hughes in the case of the Brooklyn Borough Gas Company *vs.* the Public Service Commission, New York (P. U. R. 1918, F. 335), which was quoted very extensively in Judge Gould's opinion (R., p. 58). Justice Hughes wrote the opinion of the Supreme Court of the United States in the Minnesota rate case (230 U. S., 253) and in this case in speaking of reproduction method he says:

79

> "The cost of reproduction method is of service in ascertaining the present value of the plant when it is reasonably applied, and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But is does not justify the acceptance of results which depend upon mere conjecture,"

and the American Society of Civil Engineers in commenting upon this opinion uses the following language:

> "This case sounds a note of warning against the use of irrational or unsound theories of reproduction and the use of mere conjecture in making a reproduction estimate."

The warning note sounded by Mr. Justice Hughes was a timely warning with reference to the uncertainty of reproduction cost less depreciation as a factor in determining fair value even when unit prices were based upon normal costs of labor and material. That he, himself, heeded this warning was amply demonstrated by his decision in the Brooklyn Borough Gas Company case above cited, and it is not too much to say that his opinion in the last named case has been almost universally followed both by the courts and the commissions in the cases that have been adjudicated since that time. This warning note sounded by Mr. Justice Hughes must be heeded in the instant case when the reproduction cost estimated by Mr. Almert, the engineer of the company, is considered. His entire theory and estimate is based upon what a contractor would have bid on July 1, 1916, to reconstruct new the property, the construction to extend over a period of five years in the future. In the very midst of an uncertainty, national and international, industrial and po-

litical, such as the world had never known before; at a time when no man knew what tomorrow would bring forth; with all the issues of peace and war in the balance; with every condition of human thought and action abnormal, excited and unbalanced, to attempt to find the fair value by the reproduction new cost of such a property and to take as a basis therefor what a contractor would bid to perform a piece of work covering five more years of uncertainty and confusion, is to confound confusion itself, and if every result arrived at did not "depend upon mere conjecture" as denounced by Justice Hughes, it is difficult to understand upon what it did depend.

The costs applied by the Commission were intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of value, cost of reproduction, unstable, unsound, and unsafe. In the case of certain commodities of fluctuating prices, such as copper and iron, the market prices were averaged over a period of seven years and the trend of prices studied, not to the end that the prices adopted might be representative of average past conditions, but that they might fairly represent prices as of the date of the investigation (July 1, 1914), under normal conditions such as should have obtained had the causes of fluctuations been non-existent. Prices current July 1, 1914, were taken as to all commodities of stable prices, or the prices of which, as in the case of lumber, are on a steady upward trend.

These current prices were *bona fide* quotations from manufacturers as of that date, without specifying in any way to the manufacturer how the price should be determined other than that it should be fair and based upon normal condi-

tions, except in the case of electric cables where an average base price for copper and lead as determined by the Commission was furnished the manufacturers as their starting point.

All property added from July 1, 1914, to December 31, 1916 (to date of the finding by the Commission of the fair value of the company's property), was allowed for at the actual prices paid by it for the same, as shown by its books.

The reason for the great difference between the estimates of the Commission's Engineering Bureau under Mr. Pillsbury and those made by Mr. Almert, the engineer employed by the company, arose from the fact that a different theory was adopted by each. Mr. Almert in his report says: (R., 589.)

> "The prices adopted were those which, we believe, a competent contractor, if asked to bid on the construction of such a property on July 1, 1916, would use in making his estimate of cost."

This is verified in various similar statements of Almert in his testimony. Therefore not only do the Almert prices reflect the prevailing highly abnormal, high-cost, world-war conditions of 1916, but are predicated upon the purely speculative conditions to follow that date. The assumed contractor, in determining his prices or costs, must needs look into the future, contemplate the unparalleled price levels even then prevailing, the congestion of manufacturing enterprises, the lack of supply to meet the abnormal demand, and under such unprecedented conditions attempt to form a conclusion as to what prices he could expect to pay during the assumed five-year construction period to follow.

Contrast this with the cost basis of the Commission's Valuation Bureau. On page XXII of "Basis and conclusions," (R., p. 102), in the report of the Commission's engineers, the cost basis upon which the report is predicated is explained as follows:

> "Costs are not necessarily values. The costs applied are intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of value—cost of reproduction—unstable, unsound, and unsafe. In the case of certain commodities of fluctuating prices, such as copper and iron, the market prices were averaged over a period of seven years and the trend of prices studied, not to the end that the prices adopted might be representative of average past conditions but that they might fairly represent prices as of the date of the investigation (July 1, 1914) under normal conditions, such as should have obtained had the causes of fluctuations been non-existent. Prices current July 1, 1914, were taken as to all commodities of stable prices or the prices of which, as in the case of lumber, are on a steady upward trend."

This explanation is in agreement with Pillsbury's testimony.

Counsel for the Company claimed at the hearing that the reproduction cost of this property, as given by Mr. Almert, of $23,235,387, should be taken as the fair value of the plaintiff's property upon which a fair return should be computed. In other words, that instead of its present return of 11 per cent upon a capital stock of $6,000,000, amounting to $660,000, it was entitled to demand from the consumers

rates which at a 7 per cent return would amount to $1,600,000 annually, and at the 10 per cent return demanded by the company would be $2,300,000. The Commission allowed in round figures $11,230,000 as the fair value of the company upon which its rate of return was to be computed.

On December 31, 1912, the Potomac Electric Power Company reported to Congress, in accordance with law, that the actual cost of its property to December 31, 1912, was $11,154,106.40, and that the value of its property December 31, 1912, was approximately $13,000,000, substantially the amount of its outstanding securities, which at that time amounted to $12,929,000.

On December 31, 1916, the date of the Commission's findings in this case, the company's report to Congress shows an increase of $1,356,237.70 in actual cost of property and an increase of only $264,763.28 in its indebtedness over the amounts for December 31, 1912. To the latter amount should be added the issue of additional bonds to the amount of $1,127,000 authorized by the Commission in May, 1917, which makes the increase of property since 1912 practically equal to the increase of securities. Yet the company now claims an increase value of $10,000,000 over the amounts shown in its annual report to Congress on December 31, 1916, upon which it has heretofore based its own estimate of the approximate value of its property, to wit, the amount of its outstanding securities. This is clearly shown by the following table, being an extract from the annual reports of the company to Congress:

Extract from Annual Reports of the Potomac Electric Power Company to Congress.

Date of submission of report.	Report for yr. ending Dec. 31.	Actual cost.	Value, approximately.	Amt. of paid up stock.	Amt. of indebtedness.
December 3, 1907	1906	$8,229,401.55	$8,500,000.00	$5,000,000.00	$3,450,000.00
January 31, 1908	1907	9,142,301.28	9,250,000.00	5,000,000.00	4,250,100.00
January 31, 1909	1908	9,730,678.66	10,000,000.00	5,000,000.00	5,000,000.00
February 1, 1910	1909	9,775,793.55	10,500,000.00	5,000,000.00	5,456,000.00
January 31, 1911	1910	10,196,908.66	11,000,000.00	5,000,000.00	5,971,000.00
January 30, 1912	1911	10,620,059.89	11,500,000.00	5,000,000.00	6,391,000.00
January 30, 1913	1912	11,154,106.40	13,000,000.00	6,000,000.00	6,929,000.00
January 31, 1914	1913	11,390,058.01	not stated	6,000,000.00	6,729,000.00
January 30, 1915	1914	11,655,070.30	not stated	6,000,000.00	7,106,349.69
January 31, 1916	1915	11,965,759.55	not stated	6,000,000.00	7,163,763.28
January 31, 1917	1916	12,510,344.10	not stated	6,000,000.00	7,193,763.28

Account No.	Almert classification.	Almert, as of 1916, from table 18.	Pillsbury, as of 1914, from table 17.
328	Commercial arc lamps in service (Pillsbury, all such lamps)	4,578.95	7,548.57
329	Commercial glower lamps in service (Pillsbury, all such lamps)	296.78	1,805.88
331	Electric tools and implements	8,263.35	6,194.39
332	Electric laboratory equipment	17,385.20	9,593.93
333-A	Electric signs	6,004.32	3,423.95
334	Engineering, supervision and inspection	135,000.00	409,750.00
337	Taxes	131,271.00	39,211.00
338	Administration	180,000.00	494,353.00
339	Interest	1,791,644.00	652,352.00
8	Arcs, transformers, and meters in stores and supplies (Pillsbury, materials and supplies only)	172,084.89	128,803.08
333-B	Working capital	378,396.71	135,000.00
	Total	$15,835,064.00	$10,235,563.82
302	Property rights in easements	2,500,000.00	.....
304	Development cost	2,115,323.00	.....
	Benning extension (since 1914)	300,000.00	.....
333-C	Preliminary operation	50,000.00	.....
333-D	Financing	60,000.00	.....
333-E	Compensation to conceivers	650,000.00	.....
333-F	Pre-organization expense	25,000.00	.....
333-G	Brokerage and commissions	700,000.00	.....
333-H	Great Falls water-power site	1,000,000.00	.....
	Grand total (Almert)	$23,235,387.00	.....

Account No.	Almert classification.	Almert, as of 1916, from table 18.	Pillsbury, as of 1914, from table 17.
309	Furnaces, boilers, and accessories	797,295.23	609,019.46
310	Steam engines and turbines (steam prime movers)	1,053,658.67	555,041.00
314	Electric generators	150,856.36	254,814.68
315	Accessory electric-power equipment	175,534.74	85,396.98

As hereinafter noted more specifically, several varying and conflicting factors must be kept in mind in attempting to make a comparison between these two sets of figures, namely:

(*a*) The Almert report purports to include all property within the District of Columbia (and Great Falls water-power site outside the District), both tangible and intangible, whereas the Pillsbury report was only intended to and does only include used and useful physical property within the District. All items of the Almert report below the word "total" (Table 19) are not comparable. Certain physical items of the Almert report are not included in the Pillsbury report, because not considered "used and useful" for electric operations.

(*b*) The Pillsbury report is as of July 1, 1914, with property used and useful as of that date, and with reproduction costs thereof as considered fair and normal as of that date. The Almert report is as of July 1, 1916, with all property as of that date at reproduction costs thereof, based not only on the abnormal war conditions then obtaining but on a most hypothetical, indefinite, and intangible relation thereto.

(*c*) The same property is not in all cases included under the same account numbers in the two cases, as, for instance: Accounts 310 and 314, the Pillsbury report includes the

electric generators of all steam turbo-generators under 314 electric generators, whereas Almert includes these, together with the steam ends, under 310, steam engines and turbines (steam prime movers); accounts 323, 325, and 328, the Pillsbury report includes in these accounts all transformers, meters, and all lamps, respectively, while Almert includes only those in service, those not in service being included by him in the account "Materials and supplies," etc.

(*d*) Almert includes in each account omissions and contingencies, detail enginering ("designs and specifications"), and all insurance; whereas in the Pillsbury report omissions and contingencies and insurance other than liability insurance and that on machinery in transit are set up separately in account 338, and engineering and superintendence is set up in accounts 334 and 338.

(*e*) The Almert report assumes a general contractor over all subcontractors, with corresponding additional percentage cost allowance. The Pillsbury report assumes no general contractor over all, but individual contracts under the supervision of the company's staff and that of its consulting engineers for various parts of the construction.

(*f*) Account 301-335 of Almert's report includes preorganization expenses. Pillsbury includes (in account 338) organization for and during construction only, preorganization expenses having been purposely excluded for independent consideration by the Commission.

(*g*) The Almert report is based upon a five-year period of reproduction with all money obtained at the beginning as against a three-year period of reproduction with the

money obtained at the beginning of each year in the case of the Pillsbury report, resulting, among other things, in considerably higher so-called "overhead charges" or "general costs" in the former.

Speaking generally, when the radical differences between the different conceptions of the witnesses Pillsbury and Almert of what constituted a proper theory for reproduction cost, where fair value in a rate case was to be determined, and when it is remembered that Mr. Pillsbury was making an investigation for a commission charged with the duty of fair and impartial treatment of the company and the public, and Mr. Almert was an expert witness employed by the company in its behalf, it is not to be wondered that a radical difference in result would be found.

It is now in order to consider *seriatim* the objections as set forth in the company's asignments of error.

Assignment of Error 40 (R., p. 66).

Claims for easements of the company in its right of way, $2,500,000.00, disallowed by the Commission.

There should be no valuation for an item of this character in rate cases. There can apparently be no claim for it whatever on the historical-cost theory, since there is no evidence of any cost for these easements. On the reproduction theory it would be necessary to establish that it would cost $2,500,000 to secure such rights. No evidence of that kind has been given. To attempt to show that the rights are worth a certain sum goes entirely outside the theory of either reproduction or actual cost, and attempts to apply a market theory of value, which has little connection with actual

cost or reproduction cost, but is primarily based on a capitalization of prospective earnings—which prospective earnings constitute the very matter fundamentally here in controversy, since the issue in review is that of a fair value as a basis for rates.

The right to occupy the streets and highways of the District with its conduits, poles and wires is a license or franchise which the company possesses. The actual occupation and use of the streets it claims gives it an easement and gives to this easement a separate and distinct value. The right to this occupation was granted to it by Congress without cost. The exercise of this right cost whatever it may have paid for the labor and material expended in the occupation, together with such other elements of cost as attach to it proportionately in the process of the general construction of the property. It is evident that this right to occupy the streets and its exercise is one of the bases upon which its property can be considered in its entirety as a successful and going concern. It sustains the integrity of the investment and enables the Commission to give a value to the property as a successfully operating and going concern. The value attaching to the franchise and the easement is fully reflected in the cost of reproduction of the property as a whole, when such cost of reproduction is based upon the conception of the property as a successfully operating entirety, as it is in this case.

In addition to this, it is clearly indicated in the acts of Congress granting these licenses that they were not only not to be separately capitalized, but that if they were withdrawn for any purpose such withdrawal would be without compensation.

By the acts of Congress of July 18, 1888, March 2, 1889, the District Commissioners were authorized to permit the overhead wires of telegraph, telephone, and electric lighting to be laid underground in the streets and alleys, such privileges to be revocable at the will of Congress without compensation, and (without following through the legislation of Congress on the subject) by the acts of March 3, 1899, and June 6, 1900, the Commissioners were authorized to grant permits for the enlargement and extension of electric lighting conduits and prices were fixed, limiting the price to the Government and private consumers, and specifically providing not only that the right to amend, modify or repeal the privileges granted and to further limit the prices specified is hereby expressly reserved and making it a misdemeanor to charge more than the rates thus fixed. It seems now, although Congress thus safe-guarded the rights of the people in the premises, an attempt is made to capitalize a privilege acquired without cost, a right claimed alone by the appellant of all the utilities in the District of Columbia.

The courts and commissions have almost universally held that easements should be regarded merely as franchises not to be capitalized for rate-making purposes on two grounds: First, that it would be unjust to require the public to pay a return upon property it had given the utility without cost to use in the public service, and which derived its only value from that use, and, second, that the value of the easement must depend in its final analysis upon its revenue-producing capacity, and inasmuch as the object of a rate-making proceeding is to determine the amount the company is entitled to receive from the public, and reduce that

more than convey permits for the location of apparatus such as mains upon public property. It is well known that it is the public policy of the State of New Jersey at present not to allow the capitalization of franchises for an amount in excess of the actual cost involved in obtaining said franchises. That this is a wise and equitable policy we think is incontestable. One of the characteristic features of a public utility such as a gas company is that it does not possess, and ordinarily cannot afford to purchase, the land requisite for the location of its distributing apparatus. When by its secondary franchise such permits to locate are granted to a company without other expense than the necessary business and legal costs of securing municipal consents, it seems unthinkable, as a matter of equity and public policy, that the easements gratuitously granted should be made the basis for an additional charge to be imposed upon the grantor. Even when taxes are imposed upon public utilities under the guise of franchise taxes, the taxes so imposed are commonly treated as an operating cost by the utilities, and are recouped out of the rates paid by consumers in much the same fashion as the company's other operating costs. How the company's payment in the first instance of a tax which is promptly shifted to the consuming public gives any color to the claim that the company is entitled to capitalize a franchise against the grantor and to obtain a distinct return thereon we are unable to see."

In Public Service Gas Co. *vs.* Board of Public Utility Commissioners (85 N. J. —; 87 Atl., 651, July 7, 1913) the Supreme Court of New Jersey upheld the above order of the Board of Utility Commissioners refusing to include an allowance for franchise other than the actual cost of the fran-

chise. Judge Swayze discusses this subject as follows (at pages 658-660):

"The question of the propriety of allowing for the value of special franchises is one not yet settled upon authority. That they are property is well settled. * * * Such franchises, however, are property of a peculiar kind; the right of property in them is not absolute, but is qualified by the right of the state to fix reasonable rates. The difference between an absolute right of property and such a qualified right is well illustrated by a series of cases in the United States Supreme Court. Los Angeles *vs.* Los Angeles City Water Co., 177 U. S., 558; 20 Sup. Ct., 736; 44 L. Ed., 886; Detroit *vs.* Detroit Citizens' Street Railway Co., 184 U. S., 368; 22 Sup. Ct., 410; 46 L. Ed., 592; Cleveland *vs.* Cleveland City Ry. Co., 194 U. S., 517; 24 Sup. Ct., 756; 48 L. Ed., 1102; Cleveland *vs.* Cleveland Electric Ry., 201 U. S., 529; 26 Sup. Ct., 513; 50 L. Ed., 854; Vicksburg *vs.* Vicksburg Water Works Co., 206 U. S., 496; 27 Sup. Ct., 762; 51 L. Ed., 1155. Where, as in those cases, the rate is fixed, the value of the franchise may be calculated upon the assumption of that rate. But where, as in this case, the rate is not fixed and may be changed, there is no stable basis upon which to calculate the value of the franchise, since that value is dependent upon the rate. The rate must be reasonable, but to assume a value for the franchise in order to determine the reasonableness of the rate is to reason in a circle; the value and the rate are mutually dependent, and one must be fixed independently if it is to form a basis for the calculation of the other. Brunswick & T. Water District *vs.* Maine Water Company, 99 Me., 371; 59 Atl., 537. That a special franchise in the absence of an exclusive right is property only

in a qualified sense is the result of the right of the state not only to regulate rates, but also to authorize a municipality to supply itself, and thereby destroy the value of the special franchise. Hamilton Gas Light Co. *vs.* Hamilton City, 146 U. S., 258; 13 Supt. Ct., 90; 36 L. Ed., 963. This argument is inapplicable where the public service company has an exclusive right. New Orleans Water Works Co. *vs.* Rivers, 115 U. S., 674; 6 Sup. Ct., 273; 29 L. Ed., 525; New Orleans Gas Co. *vs.* Louisiana Light Co., 115 U. S., 650; 6 Sup. Ct., 252; 29 L. Ed., 516; Walla Walla *vs.* Walla Walla Water Co., 172 U. S., 1; 19 Sup. Ct., 77; 43 L. Ed., 341.

"* * * These considerations lead us to the conclusion that logically no allowance should be made for the value of the special franchise in a case where it is not legally exclusive, and where the state still retains the right to fix rates. That is the present case."

* * *

Judge Swayze refers to the decision of the United States Supreme Court in Wilcox *vs.* Consolidated Gas Co., 212 U. S., 19, and holds that that decision in apparently including a certain amount of franchise value was not binding in the present case. In the Wilcox case a determination as to franchise value was unnecessary to the decision since the result was to sustain the rate fixed by the Commission. That is to say, the court held that the rate fixed was sufficient to yield an adequate return even though allowance was made for the valuation put upon the franchise in 1884. In order to make the case an authority the rate should have been so low that its adequacy would depend upon whether the valuation of the special franchise was included or excluded.

Fuhrman *vs.* Buffalo General Electric Company (3 P. S.

C. 2d D. (N. Y.), 739; 18 A. T. & T. Co. Com. L., 1094, April 2, 1913) involves the valuation of an electric plant for rate purposes. Chairman Stevens, in delivering the opinion of the Commission, states that it is true that the franchise is of value to the company as without the franchise the plant would have only a scrap value. The city, however, gave the franchise in order that it might secure the public service under reasonable rates of charge. A reasonable rate must be based on something that the company has put into the enterprise. The franchise is the contribution of the public, not of the company. Chairman Stevens says (at pages 763-764):

> "The city of Buffalo as a municipality has given the company a right to place its poles and string its wires in the streets for the purpose of lighting the streets. The argument that the franchise thus given has a value for rate-making purposes comes just to this: that the city must annually pay to the company, in addition to all just amounts for operating expenses, taxes, amortization, and a proper return upon the investment made by the stockholders, a further sum because of the right which the city itself had given to occupy its streets. The company desires to make money by lighting the streets. It cannot do so without having its plant in the streets. The city consents that the plant may be put in the streets, and the company then desires the city to pay it a large sum because it has consented to such use of the streets. If the franchise was of the value of $2,000,000, as seems to have been assumed in the consolidation, and the proper return upon this is 6 per cent per annum, the public in the city of Buffalo would be required to pay $120,000 each year to the respondent for no reason whatsoever except that it

had given the company the right to occupy the public streets with its plant. We are not prepared to say that either the municipality of Buffalo or the customers of the company residing in Buffalo should pay anything to the respondent on this account."

In its report on the Southwestern Telegraph and Telephone Company (Report of St. Louis Public Service Commission to the Municipal Assembly of St. Louis on the Southwestern Telegraph and Telephone Company, October 14, 1913) the St. Louis Public Service Commission considers the valuation of a telephone plant for rate purposes. In regard to the valuation of a telephone right of way the Commission says (at page 17):

"Right of way in this case means to a great extent the investment caused by the necessary payments to land owners for the privilege of erecting poles upon private property or in some cases payment for location of poles in the public street in such position as to cause complaint from the adjacent property owners. There is also included in this item of investment such costs as the legal fees to city and county for pole or wire permits and the executive and clerical expense necessary to locating and obtaining the right to set poles and string wire.

"In estimating the investment in this item the records of the company were taken into consideration and these together with the opinion of the Commission as to the reasonable cost of such investment determined the amount allowed."

The Wisconsin Railroad Commission in a general discussion of franchise values in Hill *vs.* Antigo Water Co. (3 W. R. C., 623, August 3, 1909) seems to hold that stipulated

payments to a municipality, license fees, and free service form a legitimate part of the investment in the plant and its business and may be included in the value of the plant for rate making purposes. The Commission says (at page 727):

> "Franchises are not always obtained without cost. Many of them include provisions which entail outlays that may be charged either to the capital account or the operating expenses. The former may consist of considerations in the form of stipulated payments to the municipality, license fees, a certain amount of free service upon which values can be placed, and other items of this character. The latter may include the upkeep of streets and other property, extra services of various kinds, and other items of a similar nature. The former, again, would seem to be as much a part of the investment in the plant and in its business as the cost of the physical plant, and there would appear to be the best of reasons why such costs should be included in the value of the plant for rate-making purposes. The latter would also appear to be legitimate charges to the operating expenses. In fact, we can see no valid reason to the contrary. Both would seem to be just charges against the consumers. Both tend to increase the expenses, and consequently the rates, and these increases would seem to be fair and equitable to all concerned."

OTHER CASES IN LINE WITH THE ABOVE.

Montana:

Roundup *vs.* Roundup Coal Min. Co. (P. U. R. 1916 D, 393).

were to be revocable at the will of Congress and which were generally extended under the act of March 3, 1899, under the express condition that "the right to amend, modify, or repeal the privileges herein granted and to further limit the prices herein specified (prices for electric current) is hereby expressly reserved," may be called a franchise, a special franchise, a privilege, or an easement, is of little consequence. The fact is that they cost the company nothing and it was specifically provided that they must be taken with the right reserved to Congress to further limit the charges and prices of the licensee. To claim that this so-called easement can now be capitalized against the consumer in any sum whatsoever is to make the public use so destructive of the public right that such a result could not for a moment be countenanced by any tribunal charged with a public duty.

In addition to this, without an attempt to capitalize its earnings, there is not one scintilla of evidence as to the value of these so-called easements. The company has been allowed every dollar it has ever expended in the construction of its conduits, and even more on this account. It has heretofore earned more than a fair return upon this investment, and in the future will be allowed a fair return. The attempt now to charge the public at least $175,000 annually and perpetually for privileges acquired without cost, and under the conditions mentioned, is only in line with the other attempts of the company to inflate its values in every known way.

That Justice Gould clearly apprehended both the impropriety and the injustice of this claim and his complete concurrence with the leading authorities on this subject is shown by his opinion (R., p. 60), where he says:

"The Power Company further claimed that it had a right to include in the present fair value of its property the sum of $2,500,000.00 for what it designated as its easements in the public streets. Whether the privilege to use the public streets which the Power Company possesses should be called a franchise, a privilege, or an easement, is of no consequence. The Power Company claims that its actual occupation and use of the streets under this privilege gives it an easement therein, and gives to this easement a separate and distinct value which it has a right to capitalize as against the public. To claim that these so-called easements which cost the Power Company nothing, without which it could not perform its public duty, and which it is allowed to exercise to enable it to do so, can be capitalized against the consumer of its product in any sum whatsoever, is to make the public use destructive of the public right and effect a result which should not be tolerated by any judicial tribunal. Without passing upon the question as to whether or not these so-called easements would be property rights if the property of the Power Company were to be condemned and taken by public authorities, or if the Power Company, being thereunto authorized by Congress, should effect a sale of its property to another company, it is sufficient to say that there should be no capitalization of an item of this character in a valuation made for the purpose of determining rates."

Assignment of Error 35 (R., 66).

Claim for Development Cost, $2,115,323.00.

While the Commission limited the investigation of the engineers employed by it to the ascertainment of the cost

of reproducing the physical property of the company, which necessarily excluded consideration by those engineers of certain elements of value of an intangible nature, it did not neglect to consider the question of development cost in relation to its property, or of the matter of intangible values in general. In its decision, as to this matter, it says (R., 1035-1037):

> "So far as the physical property of a utility is concerned, an estimate of the reproduction cost made by one engineer should differ from that of another engineer only when there is disagreement as to the inventory, disagreement as to prices or costs applied, or disagreement as to the program of hypothetical construction. In other words, the work of making an estimate of the amount of money it would require to replace the physical property of a utility is an engineering work, and two capable, disinterested engineers working independently upon the same problem and upon the same reasonable hypotheses should arrive at approximately the same result.
>
> "But when it comes to intangible property there is no such agreement and no such clear perception of the problems involved as to make it probable that mere engineering or economic skill and experience would lead at any time to an agreement.
>
> "The experts who have testified in this case and in other cases of like character before this Commission certainly have not agreed even as to the broad outlines of the problem.
>
> "Among the various companies whose property is being valued by this Commission and who have been heard in valuation proceedings there is no agreement even as to the nomenclature of the so-called intangibles. It is difficult to find even two witnesses who

agree as to the names of the elements of intangible value, much less the amounts.

"'Value cannot be made by the duplication of titles or the multiplication of names.'

"No company before this Commission has asked for a definite allowance for 'franchise value' as a basis for rates. Only one, the respondent, has claimed an allowance for easements, which, however, in this case amounts to practically the same thing. As for the other intangible elements asked to be considered in the reproduction cost estimate, they vary in each different presentation.

"For these reasons it is necessary for the Commission to carefully examine all claims for intangibles and to allow only what seems to them to be a reasonable amount to offset what would be the necessary expenses beyond the provision of the bare bones of the plant.

"Here enters a question that transcends the mathematical bounds of engineering. It is all very well for an engineer to imagine that a particular plant does not exist for the purpose of inventory, and that it is to be rebuilt as if it never were; but is it permissible to admit the further assumption that this electric light plant to be built under conditions affecting prices and financing prevailing in 1914, should be built in a city of 350,000 persons no one of whom knew what an electric-light plant was for? Is it permissible to admit in a reproduction cost estimate claims for huge amounts that would have to be spent in developing and in attaching business, in this, that, or the other way, which sums were not in fact spent by a company that has existed and does exist?

"Doubtful as may be the application of the theory of original cost when books have been badly kept or are such that they cannot now be precisely inter-

preted; more valuable as may be, under such conditions, the reproduction estimate of the physical property when made by competent engineers; when it comes to the matter of intangibles, every claim made under the reproduction cost theory should be subjected to the most searching scrutiny in the fullest light of the historical data available.

"The reproduction cost estimate of physical property avails itself of the historical foundation when it accepts the actual property as existent for the purposes of inventory. It is the inventory that ties the hypothetical reproduction to the actually existing physical property. The inventory in itself is historical; it is the history of the life and growth of the enterprise written in terms of construction. There can be no such inventory applying to intangibles, and therefore it is that claims for intangibles in reproduction cost estimates vary so widely. Of course, it is impossible to inventory intangible things, but if intangible things cost money in theory, it ought to be possible to inventory the money that has been spent on intangible things in the past. It would be absurd to limit the hypothesis of the reproduction of the physical property to the bounds of an actual inventory, and then let down all the bars with respect to intangibles, admitting every claim that might find a basis in theory without some insistence upon some method of linking up the hypothetical reproduction with the actual existing facts concerning the life and development of the property. If such facts are not to be found supporting certain very large claims, then it is wise to be extremely careful in considering such claims solely upon the basis of a theory.

"That a reproduction cost estimate will throw great light upon the ultimate determination of fair value is a theory to be accepted only if the reproduction cost

estimate itself is prepared with great care. Common sense approves the assumption for this purpose that the property is non-existent except for purposes of inventory, but it insists upon that inventory. Common sense cannot approve the assumption that the city which has supported a company that produced such a property is non-existent, or that its people in 1914 (or 1916) would know nothing of the value of electric energy.

"The truth seems to be that driven from the ancient practice of determining value by the capitalization of earnings, a vicious circle broken by the very institution of public regulation, efforts are now being made by piling up intangibles in reproduction cost estimates to effect the same old result—the defeat of efforts to restrict earnings to a fair return upon a fair value of the property used in performing the service. If all such claims for intangibles were allowed to the full, a circle would be legally created which would not differ from the old vicious circle in any degree, except that it would have received the sanction of public authority.

"As to development cost, the Commission, after full consideration of the evidence, concludes that there is no justification for the large claim of the company. Such a claim has not been justified by evidence of corresponding early losses and no such claim purely as a theoretical hypothesis of reproduction of the business can be entertained. The Commission, however, is of the opinion that some allowance should be made for this element of value, though largely of an intangible nature, and constituting a legitimate cost of development not covered in this case by the historical cost element or cost of reproduction element" (R., 1035-1037).

Mr. Justice Gould says in his opinion (R., p. 60):

> "In the estimate made by Almert, the engineer of the Power Company, a claim of $2,115,323.00 was made for what he called development costs, under his reproduction theory. This figure was arrived at by applying an arbitrary percentage to his reproduction cost of the physical property of the Power Company. The theory upon which such a claim was based seems to be that during a certain period of the Power Company's existence it must have incurred losses incident to the expansion of its business, either by obsolescence caused by change of construction or advancement of the art or because of securing the patronage which it now has. While it is true that such costs might attach under a purely hypothetical construction, yet when they are claimed as a basis upon which consumers are required to pay, not an hypothetical but an actual return, there should be at least some evidence that they actually did occur in the existing plant. The records of the Power Company show that the net earnings of the United States Electric Lighting Company up to the time of its acquisition by the Power Company and of the combined companies since that time have been more than sufficient to cover any such claim. All costs of attaching the business, so far as they were shown by the books and records of the Power Company, were allowed, and no actual expenditure appears in the testimony upon which a claim could be granted. The Commission in considering the question of development losses took the position that there was no justification for the large claim made by the Power Company, yet that it was proper to make some allowance for this element of value in its final finding of fair value, and that it made such allowance is evidenced by the fact that in

its final finding of fair value as of July 1, 1914, it allowed $1,137,157.00 more than the cost of reproduction less depreciation found by its engineers."

Assignment of Errors 41 (R., p. 66).

Claim for allowances as follows:

Preliminary operation	$50,000
Financing	60,000
Compensation to conceivers and promoters	650,000
Preorganization expenses	25,000
Brokerage and commissions	700,000
Great Falls water-power site	1,000,000

The company's claim for an allowance of $50,000 for preliminary operation is for expenses in connection with the trial operation of the plant and equipment and for tests, fuel, operating labor, and expert service during such trials, etc. In the report on the cost of reproduction submitted by the company's engineers no such allowance was made as a specific individual item, although the report includes in its various costs allowances of an equivalent nature, which, however, cannot now readily be summarized and which, according to the Commission's witness Pillsbury, are not in total the full equivalent. Such costs are incurred in connection with the production of such a property, and the Commission concluded that it would be fair, under the circumstances, to allow $25,000 additional therefor, and they have made such an allowance (Table 40, p. 85, order number 208, R., p. 1030).

The two claims under this paragraph for financing, $60,-

000, and pre-organization expenses, $25,000, together with company's claim for legal, organization, and franchise expenses, $262,542, referred to below, under paragraph 29 IV (*g*) (R., 28), amounting in all to $347,542, were considered by the Commission under the general heading of "Preliminary expenses prior to construction."

The first claim of $60,000 is for: (1) costs of printing, prospectuses, stock certificates, advertising, etc.; (2) engineering reports and estimates to bankers, etc.; and (3) services of trust officers and attorneys in connection with preparation of mortgage and deed of trust, etc.

The second claim of $25,000 relates to preliminary engineering surveys, reports and estimates of engineers as to the cost and feasibility of the project, etc.

The third amount of $262,542 is for the expenses claimed to be necessary in negotiating for and securing the franchises of the company and is arrived at by taking 2 per cent of the amount claimed by the company as representing the direct physical cost, and, as stated, includes legal expenses. The Commission included $65,000 for legal expenses in the reproduction cost (Table 28, page 68, order number 208, R., p. 1007), as testified to by their witness Pillsbury. The witness Almert states in his report that these allowances include estimates of moneys "spent for the purpose of securing favorable action and for expediting action both through publicity campaigns, entertaining those whose influence would be helpful, and by indirect and sometimes even by direct contributions of cash, stock, and other considerations for assistance." This idea is further amplified in the witness' cross-examination.

The company's witness F. B. H. Paine introduced an al-

lowance for "expense preliminary to the construction and expense of developing the project" (not development of the business) calculated as 2 per cent of the estimated cost of reproduction, including "base" plus "general costs" plus materials and supplies and working capital.

The Commission had before it in other cases claims for similar expenses, including in one the testimony of the same witness, Paine, who in that case uses 2½ per cent, and includes in the amount upon which he bases his percentage an item for "cost of attaching the business." In the case of the company, witness Paine does not include this last item before deriving his preliminary organization expense.

The Commission, however broadly it tried to review the subject, could not countenance the inclusion in a reproduction cost of the company's property of allowances for all such purposes as are outlined in the testimony of the company's witnesses. A fair allowance for legitimate expenses prior to construction is proper, and after a full consideration of the evidence before it and of allowances by other commissions and courts the Commission was of the opinion that $250,000 was a reasonable and sufficient amount to allow for preliminary expenses prior to construction of a utility whose reproduction cost is based upon the theory developed in the case of the company, this allowance including preliminary engineering surveys, reports and estimates, costs of printing and engraving, prospectuses, stock certificates, advertising, attorneys' and trust officers' fees in connection with mortgage deed, negotiating of bond issues, etc., which latter costs, as stated above, the witness Almert included in his claim of $60,000 for "financing."

An allowance of $650,000 for compensation to conceivers is claimed by the company as a proper inclusion for conceivers' remuneration and promoters' profit. It would appear that this claim is based upon stock issued to Crosby and Lieb, in the sum of $550,000, for obtaining a loan of $475,000 for the company and for obtaining contracts, the value of which is not even suggested, if indeed they were of any value whatsoever. The company paid $109,750 for discount and commission, or 16.9 per cent, on this loan, which expense would appear to be all that need be incurred to complete the transaction. The Potomac Electric Power Company is not the company which established and developed the electric-light and power business in the District of Columbia. As indicted in the history of the company, on pages 9, 10, and 11 of order number 208 (R., p. 933), the old United States Electric Light Company was really the pioneer in this industry in the District. It was a company that was evolved out of a very small concern, with an insignificant plant and service, and its development was slow, cautious, and successful. It is evident that if any sum whatever was paid by it for promotion expenses it was very small, and the probabilities are it was the result of the evolution of a private enterprise of a few individuals who put their money into a comparatively new instrument of quasi-public service. The present company did not come into existence until 15 years after the United States Electric Light Company had commenced and developed the electric-lighting industry in the District of Columbia and had passed the development stage, and it was 5 years thereafter before the ownership of these two companies became lodged in the same interest.

It would be most unjust to the public to allow $650,000,

or any other appreciable sum, as conceivers' commissions to individuals conceiving something already in existence, the necessity for which had been demonstrated years before they came upon the field of action.

Mr. Justice Gould's holding regarding this item is heretofore given in this brief under "Historical cost."

While it is proper, in connection with estimating cost of reproduction, to conceive of the physical property as nonexistent except for purposes of inventory (for the simple reason that in such reproduction each part must be conceived as reproduced in the same position in space), yet it is indulging in a flight of imagination too ephemeral to be worthy of weight to assume that the reproduction of this great property as of the year 1914 or 1916 takes place under such conditions that the community having no electric-lighting or power facilities is so ignorant of the advantages thereof that a conceiver of the project of such a plant must be heavily remunerated for this thought and foresight.

The company's claim of $700,000 for brokerage and commissions is stated in witness Almert's report to be—

> "For the distribution of an amount of securities, the proceeds from the sale of which would net sufficient cash to reproduce the property and business of this company as shown the brokerage and commissions, or syndicate managers' charges, would aggregate approximately $700,000" (R., 606).

In his testimony this witness says:

> "This item simply refers to the cost of which a company of this size would have to pay to a syndicate of bankers that would underwrite an issue of securities sufficient to provide net proceeds sufficient to build the property at the cost that I have here estimated."

The Commission has allowed for cost in connection with negotiating for bond issue, costs of investigations, trust deed, printing, engraving, etc., in connection therewith as indicated above under the heading "Preliminary expenses prior to construction."

When considering the equity of the amount of this claim it appears that bond discount constituting a payment for the use of money is in the nature of an interest payment; that it is not "a proper capital charge, but rather an adjustment of the interest rate to the existing market conditions and chargeable to interest account and not capital." Brokerage and bond discount are matters to be considered in connection with, and to be reflected in, the rate of return allowed; that such costs should be made up out of income by the creation of a sinking fund or reserve sufficient to cover the cost during the life of the bonds, and that therefore such costs should not in equity be considered a part of the cost of reproduction or of the "fair value" to be taken as a base for the fixing of rates.

The company's claim that $1,000,000 for the Great Falls power site should be included in the cost of reproduction has already been considered in connection with the historical cost. The Commission, in compliance with the act of Congress under which it is required to value the property, has included in its findings of the reproduction cost of said property the amount originally paid for this site, namely, $425,000. The testimony shows that this piece of property is unimproved, unproductive, and not now used nor useful for electrical purposes within the District of Columbia, and it has therefore been stated separately in the final summary of

the reproduction cost of the company's property (Table 40, page 85 of order number 208).

(*e*)

Assignment of Errors 41 (R., p. 66).

Claim for "Legal, Organization and Franchise Expense" of at least $262,542.

This claim of the company is either a gross error or a bald misstatement of the facts, as is clearly indicated by the testimony of the witness Pillsbury, who upon cross-examination detailed at length the items which made up his allowance for "legal and organization expenses." Being questioned by counsel for the company, this witness described his allowance for expenses of this nature in detail (Rec., pp. 355-356), saying that it was derived by estimating a total lump sum, and that lump sum was distributed as a uniform percentage. By lump sum he meant $275,000.

This is further referred to on page 68 of order No. 208 (R., pp. 1008-1009), and the Commission's treatment of this claim is given in connection with the objection.

The claims made by the company in paragraph 29 of its bill, section 4, items H to Z (R., pp. 29-30), simply consist in deducting from certain items in Table 19 of the Commission's opinion, R., 991, the cost of reproduction under the unit prices adopted by Almert, and the cost under the same classification under the unit prices adopted by Pillsbury, after having added to Pillsbury's items the additions made thereto by the Commission. These items and additions are as follows:

TABLE 19.—*Comparison of Almert and Pillsbury Reports.*

Account No.	Almert classification.	Almert, as of 1916, from table 18.	Pillsbury, as of 1914, from table 17.	Amount added by commission to Pillsbury's estimates.
305	General structures	$197,121.00	$96,135.00	$2,013.17
306	General equipment	97,185.01	72,131.52	.....
308	Power-plant buildings	725,973.00	532,752.00	20,266.05
310	Steam engines and turbines (steam prime movers)	1,053,658.67	555,041.00	.....
315	Accessory electric-power equipment	175,534.74	85,396.98	.....
316	Miscellaneous power-plant equipment	69,471.86	25,883.90	19,954.64
317	Substation buildings	172,588.00	120,627.00	1,127.26
318	Substation equipment	1,378,465.08	967,178.87	2,648.08
319	Poles and fixtures	158,908.43	88,030.68	.....
320	Underground conduits	2,120,963.50	1,605,304.87	.....
321	Transmission system	850,587.84	386,466.56	.....
322	Distribution system	2,167,929.57	1,332,119.44	.....
323	Line transformers and devices	156,142.21	128,082.60	.....
324	Electric services	658,174.74	440,308.01	.....
325	Electric meters in service (Pillsbury, all electric meters)	362,038.75	292,037.71	.....
326	Electric meter installation	33,880.16	20,746.44	.....
327	Public lighting system	589,855.84	301,569.30	.....
332	Electric laboratory equipment	17,385.20	9,593.93	7,256.80
333-A	Electric signs	6,004.32	3,423.95	.....

While the company has not specifically made an assignment of error as to these items, they are here considered for the reason that it may be claimed that they are covered by some of the general assignments of error, as noted, and therefore the Commission's treatment of these items is given.

Referring specifically to some of the above items, and generally applicable to all, the Commission, at pages 58 and 59 of its order, says (R., p. 993):

> "(*b*) The Pillsbury report is as of July 1, 1914, with property used and useful as of that date, and with reproduction costs thereof as considered fair and normal as of that date. The Almert report is as of July 1, 1916, with all property as of that date at reproduction costs thereof, based not only on the abnormal war conditions then obtaining but on a most hypothetical, indefinite, and intangible relation thereto."
>
> "(*c*) The same property is not in all cases included under the same account numbers in the two cases, as, for instance: Accounts 310 and 314, the Pillsbury report includes the electric generators of all steam turbo generators under 314, electric generators, whereas Almert includes these, together with the steam ends, under 310, steam engines and turbines (steam prime movers); accounts 323, 325, and 328, the Pillsbury report includes in these accounts all transformers, meters, and all lamps, respectively, while Almert includes only those in service, those not in service being included by him in the account 'Materials and supplies,' etc."
>
> "(*d*) Almert includes in each account omissions and contingencies, detail engineering ('designs and specifications'), and all insurance, whereas in the

Pillsbury report omissions and contingencies and insurance other than liability insurance and that on machinery in transit, are set up separately in account 338, and engineering and superintendence is set up in accounts 334 and 338."

"(*e*) The Almert report assumes a general contractor over all subcontractors, with corresponding additional percentage cost allowance. The Pillsbury report assumes no general contractor over all, but individual contracts, under the supervision of the company's staff and that of its consulting engineers for various parts of the construction."

"(*f*) Account 301-335 of Almert's report includes preorganization expense. Pillsbury includes (in account 338) organization for and during construction only, preorganization expenses having been purposely excluded for independent consideration by the Commission."

"(*g*) The Almert report is based upon a five-year period of reproduction with all money obtained at the beginning as against a three-year period of reproduction with the money obtained at the beginning of each year in the case of the Pillsbury report, resulting, among other things, in considerably higher so-called 'overhead charges' or 'general costs' in the former."

The claims made by the company as to the above items result from the following:

1. The company has applied to the property included in these items prices which not only reflect the highly abnormal, high-cost, World-War conditions of 1916, but the purely speculative conditions to follow. Almert in explaining his theory of the cost of reproductions says:

"We have eliminated all of those things by assuming that with this five-year construction period which we have here assumed, a contractor would be able to use reasonable and normal prices because of his ability to contract for deliveries eighteen months to two or three years hence.

"Chairman Kutz: Do you assume the five-year period as beginning or ending July 1st, 1916?

"Mr. Almert: As beginning July 1st, 1916.

"Chairman Kutz: And ending in 1921?

"Mr. Almert: Yes, sir.

"Mr. Syme: Whatever may have been your reason—lack of time or any other reason, or your disinclination to put any faith in what Dr. Bemis did, you did not complete your inventory and prices at all, then, up to May, 1916?

"Mr. Almert: I do not believe there was anything complete at that time.

"Mr. Syme: You left the prices entirely open?

"Mr. Almert: Yes. I did not know what the date of the hearing was to be, and I considered the valuation had to be as of the date of the hearing."

The prices applied to the same property by the Commission are indicated by the following statement contained in the testimony of the Commission's witness Pillsbury and in order number 208, page 47 (R., p. 976):

"The costs applied are intended to represent normal costs of reproduction under normal market conditions. Abnormal prices of brief duration, whether high or low, would render the element of value, cost of reproduction, unstable, unsound and unsafe. In the case of certain commodities of fluctuating prices, such as copper and iron, the market prices there were averaged over a period of seven years, and the trend

> of prices studied, not to the end that the prices adopted might be representative of average past conditions, but that they might fairly represent prices as of the date of the investigation, July 1, 1914, under normal conditions such as should have obtained had the causes of fluctuations been non-existent. Prices current July 1, 1914, were taken. That is, current prices were taken as to all commodities of stable prices, or the prices of which, as in the case of lumber, are on a steady upward trend."

This difference in unit prices accounts for a large portion of the company's claims.

2. These claims include many items of property that were added after July 1, 1914, the date of the Commission's ascertainment of the reproduction cost, and to these additional items the company has applied the equally high and abnormal unit prices adopted by its witness. This is well illustrated in the statement of the company under paragraph 29 IV (*j*), that the Commission has omitted $300,000 spent on the Benning extension. This extension to the Benning power plant was not begun until after July 1, 1914, and therefore could not have been included by the Commission in its reproduction costs as of that date. For this item, as well as for all other items added to the property since July 1, 1914, the Commission allowed the actual cost thereof at the prices paid therefor by the company, as clearly stated in the findings of the Commission on page 104 of its order number 208. The amount of such additions from July 1, 1914, to December 31, 1916, is, as stated in the findings, $981,170.43 (R., p. 1043 and 1051).

3. Of the claims of the company under these paragraphs many items were allowed by the Commission after a careful consideration of the evidence, a total allowance of $67,574.50, as detailed in Table 20, page 60, of order number 208 (R., p. 995).

4. Many of the items claimed by the company in these paragraphs were allowed for by the Commission under other classifications than those indicated by the company.

5. Many items of property claimed by the company to cost $26,851.60 to reproduce were not inventoried nor appraised by the Commission as they were not used for electrical operations at the time of the investigation, nor did they appear to be held for future use. As there seemed to be some doubt as to the latter with respect to some of the items, the Commission, to give the company the benefit of the doubt, restored $10,000 to the total cost of reproduction (order number 208, pages 62-63, and Table 38, page 78, R., p. 1021).

These claims of the company are discussed on pages 59 and 60 of defendants' order number 208 (R., pp. 994-995).

Assignment of Errors 39 (R., p. 66).

In allowing under account #334, Engineering, Supervision and Inspection, and in account #338, Administration, as the cost of reproduction thereof, including in account #334, Engineering and Superintendence, and in account #330, Administration, including Omissions and Contingencies and Insurance (see opinions, pp. 58-59), the sums of $409,750 and $494,353 respectively, plus $2,946 and

$3,775 respectively, added thereto by the Commission as the result of errors demonstrated to its satisfaction, which includes all omissions and contingencies and insurance other than liability insurance, and all engineering and superintendence as well, which omissions and contingencies, detail engineering, designs and specifications and all insurance should properly be and in the Almert report were included in the several accounts chargeable to primary cost of the different classes of physical property and distributed among them, and which if done would amount to much in excess of the two sums stated, whereas there should have been allowed for the engineering staff of the company alone the sum of $135,000 under account #334 and the sum of $180,000 for administration during construction only, in addition to the items above mentioned of omissions, contingencies, detail engineering, designs and specifications, and all insurance, which in the Almert estimate was distributed and specifically allocated to the different classes of physical property upon and for which these expenses were incurred. (See opinion, pp. 58-59; R., pp. 994-998.)

The differences alleged by the company under this paragraph are due to the same causes as are recited in the preceding paragraphs (*h*) to (*z*) and to the different theories of the cost of reproduction adopted by the two parties. The Commission set up in parallel columns in Table 19 page 58 of their order number 208 (R., p. 991) the figures submitted by the witnesses of the two parties, Almert and Pillsbury. It will be observed that under many of the classifications of property the company's witness claims larger amounts; this is due to the higher costs adopted by him and to the inclusion of property not in existence when the Com-

mission made its valuation. Again, under several of the classified items the amounts claimed by the Commission's witness greatly exceed those of the company.

Again, the varying and conflicting factor must be kept in mind in attempting to make a comparison between these two sets of figures, for the reason that the Almert report purports to include all property within the District of Columbia (and Great Falls water-power site outside the District), both tangible and intangible, whereas the Pillsbury report was only intended to and does only include used and useful physical property within the District. All items of the Almert report below the word "total" (Table 19) are not comparable. Certain physical items of the Almert report are not included in the Pillsbury report, because not considered "used and useful" for electrical operations and for the additional reasons set forth in connection with the preceding items (*h*) to (*z*). and which need not be here repeated.

Assignment of Errors 38, R., p. 66.

The taxes included in the Commission's valuation are in accordance with the tax rates and the methods of assessment applied by the assessor of the District of Columbia to such actual property of the company as is actually taxed and as pertaining to the three-year period of reproduction assumed by Mr. Pillsbury.

The report of the witness Almert includes taxes at the rate of $1.50 per $100 of value, based on a two-thirds valuation, as relating to the construction period assumed by him and as applying to real estate, buildings, power-plant equipment, Benning extension (not then built), substation equip-

ment, transmission and distribution equipment complete, etc., whereas actual taxes are levied against the company only with respect to land, buildings, conduits, overhead wires, poles, and lamps. In other words, the company has included taxes on a very large proportion of the property upon which no taxes are actually levied.

The claim for interest during construction arises out of the different theory of reproduction adopted by the company, which was not followed by the Commission, as hereinbefore stated. The theory adopted by the company contemplated a five-year period for construction, while the Commission adopted a three-year period.

The claim for this large amount rests solely upon the results which naturally follow in an attempt to compare the two different theories of reproduction, which are fully discussed in the Commission's order number 208, pages 70 to 72 (Rec., pp. 1004-1014).

Justice Gould refers to these items of reproduction cost in his opinion as follows (R., 59):

> "There was a wide disparity between the witnesses for the Commission and those for the Power Company in regard to the amounts to be allowed for interest and taxes during construction. This resulted from the fact that the Commission's engineers conceived the erection of this hypothetical plant upon one basis and the engineers of the Power Company upon another basis, and the time of construction adopted by the engineers of the Power Company was two years longer than that of the Commission's engineers. The determination of the questions involved in this particular was for the good judgment and discretion of the Commission, and in its exercise no reversible error appears."

In assignments of error Nos. 50 and 51 (R., 67) the company complains that the Commission's findings were not only supported by incompetent evidence but were based upon evidence not in the record and never brought to the attention of the plaintiff until after the Commission had announced its findings and the reasons therefor. These assignments of error evidently refer to the Commission's action in making an allowance of 7 per cent on its reproduction base for interest during construction, and making an allowance of 5 per cent to cover items regarding which there was an honest difference of opinion. In making these allowances the Commission did no more than that which any court would have done in reference to other cases in which it had made an allowance on a percentage basis for certain items such as interest during construction, engineering, superintendence, etc. There is scarcely a court or a commission in these valuation cases which does not refer to other cases in which it has fixed percentages for these intangible items and this is all done by the Commission in this case.

With reference to the allowance of 5 per cent of reproduction cost for possible errors and difference in judgment where items were comparable, the Commission allowed the company something which it was not called upon in law to allow and simply added 5 per cent to its own reproduction cost base as set forth in the opinion, not because any evidence in the case called for the allowance, but to accord to the company the same treatment that it had accorded to other utilities. The company could not have complained if this allowance had neither been considered nor made. It had refused to make its reproduction estimate as of July 1, 1914, where its

unit cost and other reproduction cost could be compared with the work generally by the engineers and accountants of the Commission.

Under the circumstances, the Commission would have been amply justified in declining to make this 5 per cent allowance amounting to almost half a million dollars. It did allow it, however, and instead of being grateful for a benefit received which it did not perhaps deserve, the company now seeks to take an allowance made by the Commission in a spirit of fairness as a prejudicial error and a reason for rejecting the findings of the Commission.

It is quite evident that in making this allowance the Commission was not only just but generous to the company.

The foregoing discussion covers as fully as space permits the assignments of error noted by the company. Many of the assignments of error are in general terms and many are simply repetitions. We believe, however, that the essential objections of the company have been covered by this brief. The opinion of the Commission accompanying its decision in this case has been quoted quite extensively herein as it shows in the greatest detail the consideration given by the Commission to every phase of the valuation, the reasons and evidence which influenced its judgment and action are fully set forth. Each cost classification is carefully and separately considered; the reason for every elimination is given and all restorations of property primarily eliminated by the engineers and accounts and afterwards restored by the Commission is referred to specifically.

The court will see that wherever a *bona fide* element of doubt existed, the benefit of the doubt was given by the Commission to the company. The opinion of Justice Gould

shows that he spent two years reviewing the work of the Commission in considering its method of procedure, the evidence adduced before it, the weight of the evidence and the conclusions of the Commission thereupon, and that he found no reversible error in either the procedure or the findings.

Depreciation.

The Commission fully discusses the question of depreciation in its findings (R., p. 1037).

So far as this question is concerned, the decisions of the Supreme Court of the United States leave it no longer open to argument. In the case of the City of Knoxville *vs.* Knoxville Water Company, 212 U. S., 1, Mr. Justice Moody considers the question from every aspect, and held that where the cost of reproduction is used as one of the factors in ascertaining present value, it would lead to obviously incorrect results if the cost of reproduction is not diminished by depreciation which has come from age and use. This decision has been supported in all subsequent decisions of the United States Supreme Court having to do with the matter and, therefore, it stands today the law in this country. The courts and commissions are virtually unanimous in declaring that whenever property is being valued in a rate-making case proper deduction must be made from reproduction cost new because of the fact that the property is not new but has depreciated with age and use to a greater or less extent. The Minnesota Rate Case, 230 U. S., 353, and Judge Gould's action in confirming the Commission's action hereon was eminently proper.

The Court of Appeals' Intimation that Mr. Justice Gould Did Not Exercise His Independent Judgment in Sustaining the Findings of the Commission.

The majority of opinion of the Court of Appeals in this case, while it does not say so in so many words, seems to indicate that Mr. Justice Gould gave undue weight to the findings of the Commission and did not exercise his independent judgment as to the law and facts involved in the findings. In other words, that he misconceived his functions as a court of review under the act creating the Commission and as a court of original jurisdiction, and quotes the case of Ohio Valley Water Company *vs.* Ben Avon Borough, 253 U. S., 287.

A reading of Judge Gould's opinion will show that in deciding this case he did no more than give to the Commission's findings that weight which this court has said in many cases they should have as the findings of a tribunal authorized by law and informed by experience. His entire opinion shows that he carefully considered every one of the findings of the Commission; that his study of the case extended over a period of more than two years; and that he did exercise his independent judgment in sustaining the findings in every respect.

It is perfectly true that Justice Gould cited in his opinion (Rec., pp. 50 and 51) certain cases where the United States Supreme Court had indicated the extent to which it felt it could properly go in disturbing "findings" of the Interstate Commerce Commission, and also referred to the N. Y. and Queens County Gas Company *vs.* McCall, 245 U. S., 337. The lower court, however, distinctly limits his right to review the "findings" of the Commission, but clearly states that a

thorough review of the work done by the Commission in the instant case serves to emphasize the wisdom of applying to its *findings* the rules laid down by the United States Supreme Court in determining the weight to be given them. The Court quotes paragraph 69 of the Public Utility Act which provides "that all trials, actions, and proceedings arising under the provisions of this section or growing out of the exercise of the authority and powers granted therein to the Commission, the burden of proof shall be upon the party adverse to such decision or seeking to set aside any determination, requirement, or order of said Commission to show by clear and satisfactory evidence that the determination, requirement, direction, or order of the Commission complained of is inadequate, unreasonable, or unlawful as the case may be." Rec., p. 48.

The Court, after describing the extent even as to the number of pages of the record before the Commission and of the Commission's order, added that it has been compelled "at most exacting expense of time and labor to read practically the entire record as well as the voluminous briefs," and the only limitation he places upon his right to review was with reference to the character of the findings made.

Judge Gould had this case under consideration for over two years; the argument before him consumed more than thirty hours and the evidence of the company was carefully analyzed by its counsel and presented in great detail to the court. It is perfectly evident from reading his decision that he not only read the evidence but weighed it.

So far as historical cost is concerned he states that even had the law itself not given the force to the Commission's findings, which it did give, and directed that they were not

to be disturbed except upon clear and satisfactory evidence that they were inadequate, unreasonable, or unlawful, that upon the weight of the evidence itself the findings of the Commission as to historical cost were clearly sustained by the preponderance of the evidence. Rec., p. 51.

With reference to those items of historical cost claimed by the Company, such as unamortized debt, discount and expenses, construction superintendence, general administration, interest during construction, advertising and soliciting, betterments and improvements, installation of electric meters, line transformers, devices, etc., some of which the Commission allowed in so far as the books showed direct expenditures of these accounts, the court noted the fact that these claims were the result of an attempt on the part of the company to rewrite its books and charge to its capital account items which it had for many years reported to Congress as operating expenses and that others were "mere estimates based on some arbitrary percentage estimated on one or two years' operations as to what *might* have been overhead charges, including operating expenses," and said, "these claims are unsupported by any direct testimony that such expenditures had actually occurred and I find no grounds upon which the Commission's conclusions as to these matters should be disturbed" (R., 57). In this connection, he says, Rec., p. 56:

> "The order of the Commission shows that it carefully considered, so far as the historical cost is concerned, all amounts expended for engineering and superintendence, general administration, interest during construction, and similar overhead charges shown by the books and records of the Power Company. The findings of the Commission show that as to some of these items more was allowed than its accountants

> had included in their reports. After weighing the evidence on both sides, which was to an extent conflicting, the Commission exercised its judgment as to the proper amounts to be allowed, and as its conclusions were based upon substantial evidence they will not, as already stated, be disturbed."

It is going a great length to say that Mr. Justice Gould neither understood nor performed the duty cast upon him under paragraph 69 of the Public Utility Law to exercise his judicial determination and judgment as to whether there had been adduced by the Company clear and satisfactory evidence to show that these conclusions of the Commission were inadequate, unreasonable, or unlawful. He had read, as he says, every word of the evidence; he had found that the evidence sustaining historical cost as found by the Commission prevailed by its preponderance regardless of the burden of proof and so distinctly holds; and that he neglected, misapprehended, or erroneously limited his judicial power and duty in the premises is completely negatived by his own opinion.

From one end of the record to the other there is not one word of evidence on the part of the Company as to the *reproduction cost* of its *tangible property* as of July 1, 1914. It is difficult to perceive how Judge Gould could have gone about weighing that which did not exist.

Whatever may have been the motive of the Company whether it was an attempt to take advantage of war prices, to pad and bolster up its reproduction cost as to its tangible property, as it did, or whether it was an attempt to confuse the work of the Commission by putting its evidence in such shape that it could not be compared with that of the Com-

mission's engineers, is a matter as to which no opinion need be expressed. The fact is that it gave no evidence whatsoever as to the reproduction cost of its tangible property as of July 1, 1914, and it is quite apparent that it cannot now complain that the court did not consider that which it had failed to adduce.

So far as the intangible items of its reproductions cost are concerned, such as property rights in easements, development costs, preliminary operation, financing, compensation to conceivers, pre-organization expenses and brokerage and commissions, etc., all of these were based upon arbitrary percentages estimated by Almert, the company's engineer in charge of these valuations, upon a basis of what it would have cost to reproduce the physical property on July 1, 1916. As to all of these items, the Commission allowed every dollar that the books showed had been expended. These estimates were a mere guess upon the part of the engineer Almert; there was not the slightest evidence that any such sums had been expended and the allowance made for such hypothetical expenditures was based by the Commission upon evidence of what had actually been expended and as to which there was substantial evidence. As to the Commission's treatment of these items the lower court says:

> "These hypothetical costs based upon a hypothetical reconstruction of the property the Commission allowed for in its final finding of fair value in such sums as under the evidence in the case and the exercise of reasonable judgment it thought proper, and I find no error in its conclusions in this respect."

As to the claim made for the large sum of $2,115,323 for what Almert called development cost under his reproduction

theory, the court says this was arrived at by applying an arbitrary percentage to his reproduction cost of the physical property of the company, and adds that "while it is true that such costs *might* attach under a purely hypothetical construction, yet when they are claimed as a basis upon which consumers are required to pay, not a hypothetical, but an actual return, there should be at least some evidence that they actually did occur in the existing plant."

The court further observes that all costs of attaching the business (which is but another term for development cost), so far as they were shown by the books and records, were allowed by the Commission.

The court in its opinion further says that it carefully considered the question of interest and taxes during construction and the cause of the wide disparity between the witnesses for the Commission and the company in regard to the amounts to be allowed therefor; that the testimony conflicted and that the final determination of the question was for the good judgment and discretion of the Commission and that in its exercise no reversible error appears, which is nothing more than to say that there was no clear and satisfactory evidence to show that it had erred in this regard.

All of the circumstances attending the hearing in the court below and the opinion of Justice Gould show that the case was given the most thorough review; that the evidence was carefully considered and that the court found no evidence of clear and satisfactory character upon which it felt justified in disturbing the findings of the Commission.

In the words of the Supreme Court of the United States in Ill. C. R. R. Co. *vs.* Interstate Commerce Commission, 206-

459—"the statute gives *prima facie* effect to the findings of the Commission, and when these findings are concurred in by the circuit court, we think they should not be interfered with unless the record establishes that clear and unmistakable error has been committed. * * * The circuit court affirmed the order of the Commission and it is an instant presumption that the court considered all the elements in the testimony and inferences from it. * * * And therefore the court, in reaching its ultimate judgment, may have given them all the weight to which they were entitled."

Fair Value and Reproduction Cost.

The Commission was directed to value the property of every public utility within the District of Columbia actually used and useful for the convenience of the public at the *fair value* thereof at the time of such valuation.

At the very outset as basic and fundamental and to be borne in mind always in the consideration of the valuation not only of this, but of every other public utility exercising its duty under a public grant of authority, must be recognized the fundamental difference between property privately owned and privately used, and property privately owned so dedicated to the public as to impress it with a public use, and in addition, the fundamental difference between property privately owned and privately used, and property owned by a corporation deriving all of its powers from legislative grant of authority and exercising the same by virtue of the law. The reason why this difference is essential to be considered in the valuation of a public utility operating under a public authority is that those elements of value which fix and determine the worth to the private

owner of private property not dedicated to a public service and the owner of property so dedicated are in no sense identical. The private owner of private property not devoted to a public purpose may use it as he will, provided he respects the rights of others in his use of his own property. He may permit it to lie idle as long as it suits his fancy and may use it for any lawful purpose in any lawful way, that his interest or his inclination dictates. If it is productive, he may charge what he chooses for the product and no man may say him nay. He may discriminate between his patrons or his purchasers without limit or hindrance. He may sell or refuse to sell as he sees fit. If he desires to alienate his property, he may charge for it what he will, and it is worth to him what he can get regardless of any consideration of market value.

The difference between the essential characteristics of the *individual* who owns property not affected with a public interest, and the *individual* who owns property affected with a public interest is nowhere better illustrated than in the case of Munn *vs.* Ill., 94 U. S., 83.

> "Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created."

As long as the private property of the individual is thus devoted to a public purpose, it ceases to be entirely an individual matter or a matter between individuals. A third

element enters. He has granted to the public an interest in the use of his property and his absolute control over it is limited to the extent of the use he has thus created. He can no longer serve whom he pleases and charge what he pleases. Therefore, the extent of the control and income of the property is limited. He may regain absolute control by discontinuing the use, but this is the only way.

To a much greater extent is this loss of control and limitation of use and return involved when a corporation under a grant of power from legislative authority devotes its property to the public use provided by its charter. It can only use its property for the purpose of the public grant; it can not alienate or transfer all or any portion of it necessary to the fulfillment of its duty to the public without express legislative authority, and it must submit to extensive legislative control.

In 1898, in the leading case of Smyth *vs.* Ames, 169 U. S., 466, Justice Harlan indicated the factors to be considered in the valuation of property impressed with a public use.

Justice Hughes, in delivering the opinion of the court in the Minnesota Rate Cases (230 U. S., 352), states that in determining whether rate regulation is confiscatory, "each case must rest upon its special facts." He states, however, that "the general principles which are applicable in a case of this character have been set forth in the decisions." He states that the basis of calculation is the fair value of the property used for the convenience of the public, but that the ascertainment of fair value is not controlled by artificial rules and is not a matter of formulas, but "must be a reasonable judgment having its basis in a proper consideration of all relevant facts." He states that the facts

to be considered are partly described in the oft-quoted extract from Smyth *vs.* Ames. The following is from the decision (at pages 434-435):

> "(1) The basis of calculation is the 'fair value of the property' used for the convenience of the public. Smyth *vs.* Ames, *supra* (p. 546). Or, as it was put in San Diego Land & Town Co. *vs.* National City, *supra* (p. 757): 'What the company is entitled to demand, in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public.' See also San Diego Land & Town Co. *vs.* Jasper, *supra;* Willcox *vs.* Consolidated Gas Co., *supra.*
>
> "(2) The ascertainment of that value is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts."

The method of ascertaining fair value depends upon circumstances, and frequently, as in this case, the ascertainment of the historical cost of the property is combined with its reproduction cost, less depreciation, and these are considered in the light of those other elements of value specified in Smyth *vs.* Ames, 169 U. S., 466, and other decisions of the Supreme Court of the United States.

In the present state of confusion as to the law and the conflicting theories as to valuation of public utilities for rate-making purposes, it is not impossible that the instant case may become a landmark and that its outcome will be the presentation of a clear and definite theory of valuation excluding all others except as they may be needed in check-

allowed a return upon materials actually put into a plant and composing most of it, which were purchased at the far lower prices prevailing from five to twenty-five years ago. Upon what just theory could it be considered that the public must pay rates on double and treble the capital actually invested simply because if the plant were to be built today, and it is not, it would cost two or three times as much as it did? It certainly can not be an unchangeable rule of property that the owners of a public utility are entitled to have such appreciation of costs reflected in their rates when such accretion did not represent a dollar of capital invested for a public purpose.

As Mr. Justice Hughes says in the Minnesota rate cases, "Fair value is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts." In the same case, in speaking of the reproduction method, he says:

> "The cost of reproduction method is of service in ascertaining the present value of the plant when it is reasonably applied, and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which depend upon mere conjecture."

As was said by the committee of the American Society of Civil Engineers, "This case sounds a note of warning against the use of irrational or unsound theories of reproduction and the use of mere conjecture in making a reproduction estimate."

If this warning note as sounded by Mr. Justice Hughes is ever to be heard, it must be heeded when the reproduction

cost estimate of Mr. Almert is considered. It is difficult to imagine under existing conditions what could have been less certain, more irrational or conjectural than an estimate of what a contractor would have bid on July 1, 1916, to reconstruct new the property of the plaintiff over a period extending until 1921. In the very midst of an uncertainty, national and international, industrial and political, such as the world has never known before; at a time when no man knows what the morrow will bring forth; with all the issues of peace and war in the balance; with every condition of human thought and action, abnormal, excited and unbalanced, to attempt to find the fair value by the reproduction new cost of such a property and to take as a basis therefor what a contractor would bid to perform a piece of work covering five more years of uncertainty and confusion, is to confound confusion itself, and if every result arrived at did not "depend upon mere conjecture" as denounced by Justice Hughes, it is difficult to understand upon what it did depend.

It is also to be considered as a serious objection to the reproduction new theory that it requires the use of certain percentages for engineering, superintendence and other direct and indirect overhead charges, which are purely theoretical as applied to the existing plant, for the reason that it does not appear to what extent such charges were actually incurred by the company. In addition, these percentages are based upon the cost of the physical property exclusive of land, and as the unit prices for labor and material upon which such cost is estimated vary in such a wide degree because of changes in industrial conditions affecting market prices, percentages of cost based upon an estimate so made would necessarily differ to the same extent.

The attention of the court is earnestly invited to the opinion in the case of Maires *vs.* Flatbush Gas Company before the New York Public Service Commission, First District, reported Vol. 1920, E. No. 5, P. U. R. 930. In this case the New York Commission enters into an elaborate discussion of reproduction cost as a standard for the rate base of a utility, holding it to be so oscillating and fluctuating as not to offer any permanency or security either to the public or to the investors, and also enters into a careful discussion in which it holds that in consideration of reproduction cost no allowance can be made for theoretical profits of contractors, for overhead engineering expenses, and other intangible items where there is no evidence that such allowances have been actually paid.

In discussing the contention of some of the public utilities that unit prices at war-time levels should be applied in a reproduction estimate and after citing the New York statute as to the regard to be paid to capital actually expended as the rate basis, the Commission says, page 939:

> "Notwithstanding this and other clear expressions of the legislative intent and the public policy as to the paramount consideration, founded in reasonableness and justice, which must guide this Commission in the adjustment of rate questions arising between the public and the utilities, it is contended by the respondent in this proceeding that it is entitled to a fair return upon the amount of property used by it in the public service, measured by opinion estimates of the reproduction cost thereof, even where data of actual cost is available. The claim that its return should be calculated on estimates of what it ought to cost to reproduce the property is moderated slightly by its

obviously proper concession that there should be first deducted from the face of these estimates the amount of the accrued depreciation, figured, not on the reproduction cost new of the property, but upon the much lesser amount of original cost, and also that the unit prices to be assumed or assigned for the reproducing of the property, should be taken from or reduced to pre-war and normal market levels. If, however, it is to be recognized that the value of the property upon which the respondent is entitled to earn a return through its rates is to be measured solely by the reproduction cost thereof, unaffected by consideration of the actual outlay therefor by the investors, and regardless of the methods and conditions of original construction, then logically there would seem to be no escape from the conclusion that the respondent would be entitled to claim a return upon such a property cost as would be attributable to it if all the property were produced or reproduced in one continuous operation at present-day market prices of labor and materials.

"In the present juncture of universal upheaval, the application of such a postulate of evaluation to rate making would lead to startling consequences. Without a dollar of additional investment and in the face of adversity and suffering, the value of the respondents' property would be deemed to have vastly increased, and the amount which the company's investors are entitled to take from the consumers would be deemed to have greatly increased, simply because a World War has demoralized market conditions. Upon the restoration of normal conditions, investment made in property of the company at war time market prices will of course shrink in value, perhaps violently, as prices tend to resume normal levels, and even the investments previously made might shrink

if there should be a considerable depression in market quotations. The present and prospective situation of property values, material costs, etc., throughout the world, emphasizes the unreliability, unfairness, and fiscal dangers of computing return on estimates of reproduction cost less depreciation. A standard so oscillating and fluctuating could not offer any permanency or security either to the patronizing public or to the investors, and is unjust. The learned counsel for the company safely abandoned any contrary contention, but failed to abandon some of its inevitable implications.

"On the other hand, the claim that, even when the data of actual outlay is available, estimates of reproduction cost must be accepted as basis and measure of value in rate making for the reason that other measures, particularly original cost, or investment outlay, are to be regarded as having been judicially rejected, is not sustained from the standpoint either of reasonable regulation or of constitutional guarantees. Recent decisions of the highest courts of the State and the nation have been such as to make pertinent and timely a re-examination of fundamentals and resurvey of supposed bases, in this regard. * * *

"It was only in more recent years that the assumption sprang up that 'reproduction cost' is 'fair value,' that an available auxiliary in method has become the controlling objective; and that a Commission is bound to accept estimates reached by this method, even when figures resulting from Commission control of securities, supervision of outlays and requirement of sound bookkeeping methods, are at hand to give the lie to the conclusions predicated on such estimates. With the availability of data of actual outlay, far more dependable than any 'opinion estimates' of engineers, there has arisen a manifest judicial disposition to re-

assign 'reproduction cost' to its proper place and give to the products of Commission scrutiny of accounts, securities, and expenditures the weight which they deserve and without which the whole regulative plan becomes the prey of 'experts willing to swear to anything and skilled in making it plausible.' One of the basic purposes of the Commission plan of regulation has been held to be the protection of the investing public, through prevention of capitalization in excess of outlay on the one hand, and assurance of fair return on invested capital, on the other. (People *ex rel.* N. Y. Edison Co. *vs.* Willcox, 207 N. Y., 86, 93, 100, N. E. 705; People *ex rel.* Delaware & H. Co. *vs.* Stevens, 197 N. Y. 1, 90, N. E. 60), and it is only natural that a requirement found its way into the statute that in rate making, the Commission should give due regard to a return on the 'capital actually expended.'

"The swing away from the artificial concepts which had been conjured up in the guise of 'reproduction cost new,' became marked in the Minnesota rate cases (230 U. S. 352, 434, 57 L. ed. 1511, 48 L. R. A. (N. S.) 1151 33 Sup. Ct. Rep. 729, Ann Cas. 1916 A, 18), in which the Supreme Court of the United States ruled that:

" 'The ascertainment of that value (fair value) is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts.'

"That reproduction cost must be accepted as the controlling factor in ascertaining fair value has never been established. On the contrary, the court, as far back as Smyth *vs.* Ames (*supra*), indicated various factors to be regarded within the scope of the inquiry as to the value of the property."

This court has not in any decision rendered since the Minnesota rate case held to the contrary of the views therein expressed by Mr. Justice Hughes.

When this case was decided by the Court of Appeals of the District of Columbia Mr. Chief Justice Smyth handed down a dissenting opinion in which he concurred completely in the decision of Mr. Justice Gould and discussed at length the question of reproduction cost under present conditions as a factor in the ascertainment of fair value.

His dissenting opinion is as follows:

Dissenting Opinion by Chief Justice Smyth.

"The court does not disapprove the findings of the Commission with respect to the value of the property on July 1, 1914, but holds in effect that since there was substantial testimony that the cost of reproduction had greatly increased between that date and December 31, 1916, the fair value of the property must also have increased, and therefore that the Commission erred in not having given effect to that increase. And it imposes on the Commission the duty of saying 'how much in fairness should be added to the earlier (1914) valuation.' But the Commission have already decided that nothing in fairness should be added—that the abnormal increase in the cost of reproduction caused by the World War was not an index of fair value. The Commission's notion of fairness upon the point is known now, for we can not assume that it has changed, and hence a direction to them to do what is fair in the premises is equivalent to saying that they should adhere to their former judgment. For this reason I think that there should

be a definite instruction given as to whether the whole amount of this increase, or only a part, and if a part what part, should be added. Suppose the Commission allow ten per cent, of the increase, will the court approve their action or send the case back for retrial? To my mind the Commission are entitled to know just what the court's view is on the question.

"But I do not think any part of the increase should be included, because, in my judgment, it has no tendency to indicate the fair value of the property. The increase is not due to any investment by the company, but results solely from the World War, which has demoralized market conditions and rendered property values unreliable. To accept such an increase as a standard of value would be to adopt an unstable measure, which would lead to injustice. 'Prices advanced under the artificial stimulus of the European War' said the Commission, 'with such rapidity and to such an extent as to prevent the formation of a reliable opinion as to their permanency or future effect upon the industrial and economic situation in this country'. It was on prices thus advanced that the company based its reproduction cost, for its chief expert said: 'The prices adopted were those which, we believe, a competent contractor if asked to bid on the construction of such a property on July 1, 1916, would use in making his estimate of cost.' At that time the World War was at its height. Such a contractor would have to consider the great uncertainties attending the procurement of labor and material and the fluctuations in the cost of both, and to be safe would have to fix his prices enormously high. Could there be a more oscillating or unfair standard found? The Commission was right when it said, 'under what principle of law or equity may purely speculative-cost increments be created and added un-

der the very eyes of the Commission and during the very time of its investigations to find fair value.'

"Mr. Justice Gould, who reviewed the case in the Supreme Court, said reproduction cost could be used where it 'is determined as of a fairly normal period.' but 'it would lose all value if made as of an abnormal period when prices were abnormally low or high. To be of any assistance or real use it must be made as of a normal time and the unit cost applied thereto should extend over a sufficient number of years to show a normal trend of prices.' In hormony with this is the language of Judge Hughes as referee in the case of Brooklyn Borough Gas Company *vs.* Public Service Commission, decided July 24, 1918. He wrote the opinion of the Supreme Court in the Minnesota Rate Cases, and may be regarded as an expert on the question. 'To base' he said, 'rates upon a plant valuation simply representing the hypothetical cost of reproduction at a time of abnormally high prices due to exceptional conditions would be manifestly unfair to the public, and likewise to base rates upon an estimated cost of reproduction far lower than the actual bona fide and prudent investment because of abnormally low prices, would be unfair to the company': and condemned the contention that the cost of reproduction should be used, as a standard, by saying: 'This would result in allowing a public service corporation to take advantage of a public calamity by increasing its rates above what would be a liberal return not only on actual investment, but upon a normal reproduction cost, in the view that unless it could make an essentially exorbitant demand upon the public it would be deprived of its property without due process of law.' True, he was speaking there of the insistence that the cost of reproduction should be used as a sole test of value, but his argument would

forbid the inclusion of any part of it. The point he was considering can not be distinguished in principle from the one in the instant case.

"The New York Public Service Commission, First District, No. 5, P. U. R., 930, denying the proposition that reproduction cost should be used, said: 'In the present juncture of universal upheaval, the application of such a postulate of evaluation to rate-making would lead to startling consequences.'

" 'The cost-of-reproduction method,' says the Supreme Court of the United States in the Minnesota Rate Cases, 230 U. S., 352, 452, 'is of service in ascertaining the present value of the plant, when it is reasonably applied, and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which depend upon mere conjecture.'

"If instead of the cost of reproduction being inflated it was abnormally low as in the time of a panic, would it not be held unfair to value the company's property by such a standard? In the leading case of Smyth *vs.* Ames, 169 U. S., 466, 547, the value of the Union Pacific Railroad was under consideration for the purpose of fixing a rate base. The road was constructed a few years after the close of the Civil War when prices were abnormally high. The testimony in the case was taken in the wake of the panic of 1893 when the road could have been reproduced for about one-third of what it had cost. To take the cost of reproduction as the standard of value would be very unjust and the Supreme Court refused to do it, but it said that it should be considered with certain other factors named, without indicating what weight should be given to it or any of the others. The inference is that the triers of fact are to examine all these factors allowing to each such effect, if any, as in fairness it

should have in forming their appraisal of the value. The Commission here considered the reproduction cost and rejected it because of its abnormality."

"The rate base to be fixed was not to be for a month or a year, but for a number of years, for it is not believed that it was the intention of Congress that, in view of the trouble and expense attending it, a valuation should be made very often. If effect was given to the high reproduction cost prevailing in 1916, the patrons of the utility would be compelled to pay a rate which would afford a just return on the value fixed. This would be extremely unfair. It is said that if the cost of reproduction should drop, the Commission is empowered by the statute to revalue the property. True, but if the company issued stocks and bonds based on the value placed on its property by the Commission, we would have the same situation as existed in the Consolidated Gas Company case, 212 U. S., 19, 43. There a number of gas companies were authorized by the legislature to consolidate in one company, which was empowered to issue stock "not to be in amount more 'than the fair aggregate value of the property, franchises and rights of the several companies to be consolidated.'" The franchise was valued at seven millions of dollars. Stock was sold on the basis of the valuation. Many years afterwards it was sought to fix the value of the consolidated property as a rate base. It was urged that no allowance should be made for the franchise, but the court said that as it was valued by direction of the legislature and stock purchased on the assumption that it was worth $7.000,000, the stockholders were entitled to receive a fair return upon it. Applying that doctrine to this case, would not the stockholders who purchased stock on the theory that the high value fixed by the Commission was the true value be in a strong posi-

tion to say that they were entitled to a fair return on that value and that it could not be reduced if by doing so they were deprived of such a return?"

"The value placed on the property by the Commission finds strong support in the following facts: The Commission allowed $1,322,936.28 more than the amount found by their accountants as the historical cost of the property undepreciated; $1,037,486.91 more than the cost of reproduction in 1914, less accrued depreciation as found by their engineers; and $761,737.23 more than their own finding of the same element of value. They found the fair value of the property on July 1, 1914, to be $10,250,000, to which they added $761,737.23, the actual cost of additions made between July 1, 1914 and December 31, 1916, and fixed the value as of the later date at $11,231,178.43. The company claimed the fair value to be on December 31, 1916, $23,235,387. Compare this claim with what it said the property was worth in its reports to Congress before the investigation was entered upon. There is a report for each year running from 1906 to 1912. In the first, the approximate value was placed at $8,500,000; in the last, at $13,000,000. These amounts improperly include the value of the Great Falls Power site, which is not being used for the benefit of the public, at $1,000,000, and $1,977,150.63, a book value, without any substantial basis, given to the property which the company acquired from the United States Electric Lighting Company. When these amounts are deducted from the figures of the 1912 report a balance will be left of $10,022,850, which is $227,150 less than the July 1, 1914 value as fixed by the Commission.

"After 1912 the reports did not contain a statement of the approximate value of the property, but did give its actual cost. The one for 1914 said it cost

> $11,655,070.30; the one for 1916, $12,510,344.10. Deduct from the last figures the two items which I have just said were improperly included and the balance would be $9,533,194.00 as the cost of the company's property according to its own statement made in 1916, the time when the decision of the Commission was rendered; or $1,697,984.00 less than the Commission allowed.
>
> "In view of the foregoing, I do not think the company has, in the language of the statute, clearly and satisfactorily shown that the finding of the Commission is inadequate, unreasonable, and unlawful, and hence I dissent."

The valuation of this property was made under conditions such as obtained in no other valuation which the courts, and particularly the Supreme Court of the United States, have been called upon to consider. For years up to the beginning of 1915 prices as to material and labor have been sufficiently uniform in their stability or trend as to enable engineers to form an estimate of reproduction cost which should not greatly differ from the actual cost of the property, and when sufficient data existed as to both it was not an impossible matter for courts and commissions to approximate the fair value of the property.

The breaking out of the war changed a fairly normal condition, in a period of six or seven months, to the most abnormal condition this country has ever known. Under the demand of the warring nations for all of the basic materials entering into the construction of the ordinary public utility the price of iron, steel, copper, wire, and other essential materials, increased by leaps and bounds. Every normal condition in the market, both as to materials and labor, was

overturned. The condition was without precedent, and therefore the views of courts and commissions and engineers applied to normal conditions were of little assistance to a commission charged with the public duty of holding the scales of justice even and impartial between the rights of the public to reasonable rates for service and the rights of the utilities furnishing such service.

Confronted with an extraordinary and absolutely unprecedented situation, and charged with the solemn responsibility of doing exact justice in the premises, the Commission, after giving the fullest consideration to every word of the testimony as given by Messrs. Almert and Pillsbury, and after comparing the estimates of these two engineers in so far as the same were comparable, and knowing that the estimates of the most conscientious engineers frequently differ from ten to forty per cent as to the construction cost of large properties, even under normal conditions, sought to find the normal reproduction cost of that part of the physical property which was in existence and used and useful on the 31st of December, 1916, and the fair value of the property as of that date after consideration of every factor properly involved.

A study of the record in this case will show that every right of the company to a full, complete and impartial hearing was accorded it by the Public Utilities Commission; that the procedure adopted for the hearings was more than favorable to it; that nothing was considered as evidence of which it did not have full and ample notice and opportunity to meet; that the findings of the Commission, as set forth in its order, indicate the care and impartial consideration given by it to the case and are amply justified by the evidence; that

there is no evidence in the record upon which any of these findings should be reversed regardless even of the legal presumption in their favor written into the law itself.

Justice Gould after hearing the most elaborate argument, to which he gave his undivided and serious attention, and after reading every word of the testimony and considering the same for over two years, sustained the findings of the Commission in every particular. The confidence which counsel for the Commission had in the justice and legality of the action of the Commission has been fortified and confirmed by Justice Gould's decision, and we believe that it should and will be sustained.

Respectfully submitted,

FRANCIS H. STEPHENS,
Corporation Counsel, D. C.,
CONRAD H. SYME,
Attorneys for Appellant,
The Public Utilities Commission
of the District of Columbia.

Office Supreme Court, U. S.
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CLERK

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1922.

No. 280.

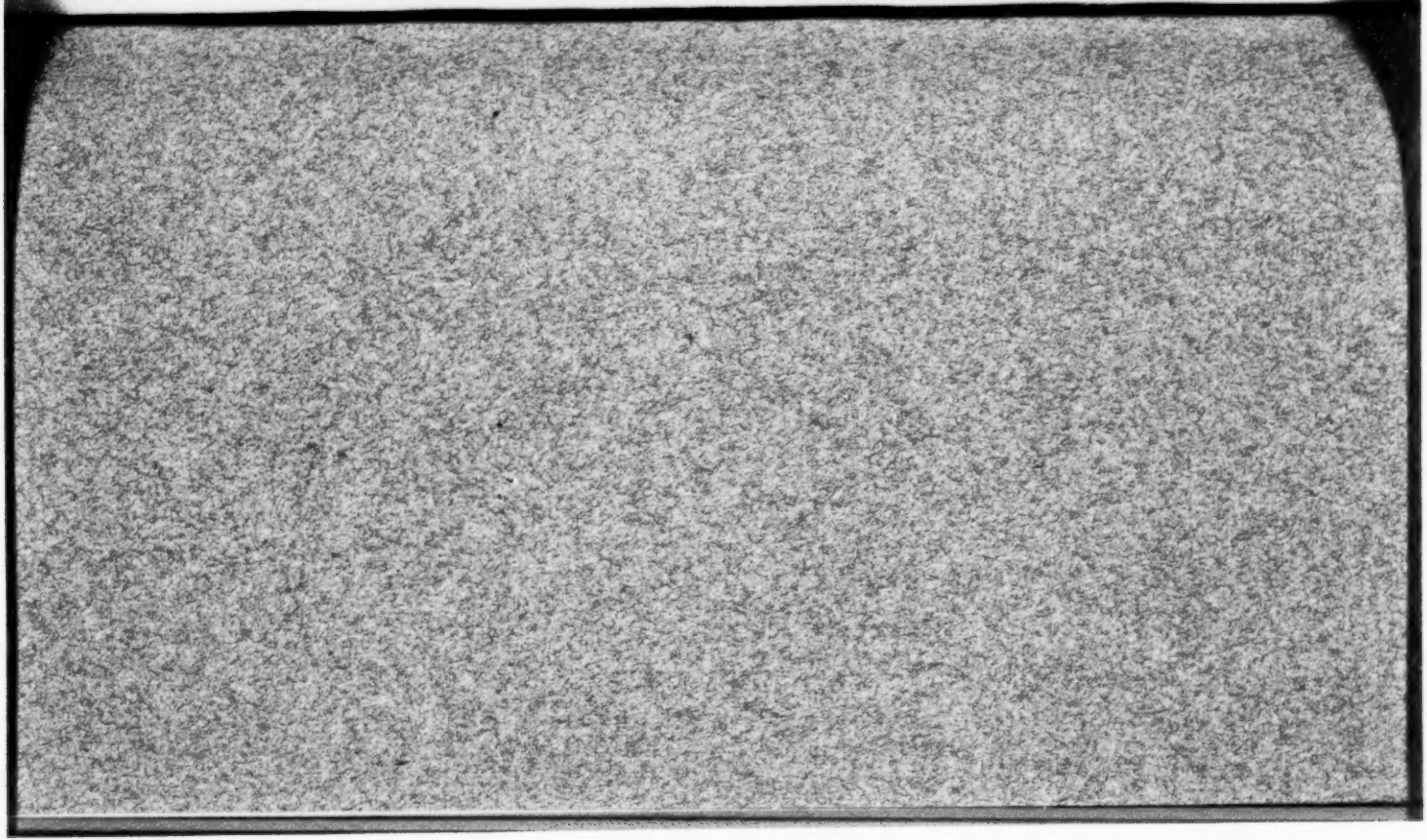
THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, APPELLANT,

vs.

POTOMAC ELECTRIC POWER CO., INCORPORATED, AND WASHINGTON RAILWAY AND ELECTRIC COMPANY, APPELLEES.

BRIEF FOR THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA.

FRANCIS H. STEPHENS,
General Counsel, P. U. C.,
CONRAD H. SYME,
Special Counsel, P. U. C.,
GEORGE P. BARSE,
Assistant Corporation Counsel, D. C.,
Attorneys for Appellant, The Public Utilities Commission of the District of Columbia.



INDEX OF SUBJECTS.

	Page.
Administrative and judicial duties	1
Appellate jurisdiction	5
(*a*) What is a "case"	6
(*b*) Whether the "case" arises under the Constitution	13
(*c*) Whether the "case" arises under the laws of the United States	16
Assignment of errors	4
Courts of the District of Columbia	11
Prayers of the company's bill	3
Questions to be argued	1
Statement of the case	3
Whether the judgment below is final	20
Whether a final judgment be necessary	17

CASES CITED.

Atlantic Coast Line v. N. C. Corporation Com., 206 U. S., 1	16
Amer. Sec. & Tr. Co. v. D. C., 224 U. S., 491	16
B. & O. R. R. Co. & I. C. C., 215 U. S., 216	8
Carondelet Canal v. La., 233 U. S., 362	20
C. & P. Tel. Co. v. Manning, 186 U. S., 238	22
Chicago, etc., Ry. Co. v. Minn., 134 U. S., 418	15
City of Mitchell v. Dak. Tel. Co., 246 U. S., 396	15
Cohen v. Va., 6 Wh., 264	7, 12
Columbus Ry. v. Columbus, 249 U. S., 399	11, 15
Consolidated Gas Co. v. Newton, Adv. Sh., April 15, 1922, p. 305	11, 23
Denver v. Denver, 246 U. S., 178	11, 16
Denver v. N. Y. Trust Co., 229 U. S., 123	17
Deposit Bank v. Frankfort, 191 U. S., 516	13
Des Moines v. Des Moines, 238 U. S., 153	11, 15
Embrey v. Palmer, 107 U. S., 3	13
Ex Parte Carll, 106 U. S., 522	7
Ex Parte Howell, 9 M., 352	13
Ex Parte Milligan, 4 Wal., 133	7
Ex Parte Norvell, 20 D. C., 348	12
Forgay v. Conrad, 6 How., 201	22

Page.

Gordon v. U. S., 2 Wal., 561; 117 U. S., —..... 9, 10
Grant v. Phœnix Ins. Co., 106 U. S., 429..... 20
Hayburn's Case, 2 Dal., 408..... 9
Heald v. D. C., 254 U. S., 20..... 16
Hollis v. Kutz, 255 U. S., 482..... 13
I. C. C. v. Brimson, 154 U. S., 447..... 7
I. C. C. v. Union Pacific Ry., 222 U. S., 541..... 11, 16
Irvine v. Marshall, 20 How., 565..... 8
Knoxville v. Water Co., 212 U. S., 1..... 15
La Abra Silver Mine Co., 175 U. S., 423..... 7
Lincoln Gas Co. v. Lincoln, 250 U. S., 256..... 11, 16
Loughborough v. Blake, 5 Wheaton, 317..... 13
Marbury v. Madison, 1 Cr., 138..... 7
Martin v. Hunter, 1 Wh., 352..... 7
Minn. Rate Cases, 230 U. S., 352..... 14
Moss v. U. S., 23 App. D. C., 483..... 13
Muskrat v. U. S., 219 U. S., 346..... 9
Nashville v. Cooper, 6 Wal., 247..... 7
Noerr v. Brewer, 1 McA., 507..... 12
Osborne v. Bank, 9 Wh., 738..... 6
Ohio Valley Co. v. Ben Avon Borough, 253 U. S., 287..... 10, 13
Ormsby v. Webb, 134 U. S., 47..... 7
Ownings v. Norwood's Lessee, 5 Cr., 348..... 7
Re Farmer's L. & Tr. Co., 169 U. S., 206..... 12
Re Spencer, McA. & M., 433..... 12
Re Sing Kuck, 126 F., 397..... 9
Reagan v. Farmer's L. & Tr. Co., 154 U. S., 362..... 10, 16, 23
R. R. v. Miss., 102 U. S., 140..... 7
Rowland v. St. Louis, 244 U. S., 106..... 11, 15
St. Louis, &c., Ry. v. So. Exp. Co., 108 U. S., 24..... 12
So. Pac. v. I. C. C., 215 U. S., 226..... 8
Smith v. Adams, 130 U. S., 107..... 6
Trustees v. Greenough, 105 U. S., 527..... 13
U. S. Fidelity Co. v. Bray, 225 U. S., 205..... 17
U. S. v. Term. R. R., 215 U. S., 595..... 8
U. S. v. Ferreira, 13 How., 40..... 9
U. S. v. Jones, 119 U. S., 477..... 9
U. S. v. Kendall, 5 Cr. C. C., 164..... 12
Wood Paper Co. v. Heft, 8 Wal., 336..... 7
Wilcox v. Carrol Gas Co., 212 U. S., 19..... 15
Winthrop v. Iron Co., 109 U. S., 180..... 20

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1922.

No. 260.

THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA, APPELLANT,

vs.

POTOMAC ELECTRIC POWER CO., INCORPORATED, AND WASHINGTON RAILWAY AND ELECTRIC COMPANY, APPELLEES.

BRIEF FOR THE PUBLIC UTILITIES COMMISSION OF THE DISTRICT OF COLUMBIA.

The court has requested argument upon three questions:

1. Whether Congress can vest in this court under the restrictions upon its appellate jurisdiction under the Constitution the character of review of the proceedings of the Public Utilities Commission contemplated by the act creating it.

2. Whether an appeal can be taken to this court until a final judgment has been pronounced in the District Court of Appeals.

3. Whether such judgment is final.

In order to get a clear understanding of what is expected of this court in the exercise of appellate jurisdiction it may be well to give a very brief outline of what has transpired heretofore.

To fulfill its duty under the law, (the Act of March 4, 1913), of ascertaining the fair value of the company's property, the Commission organized a valuation bureau, one branch of which ascertained the historical value of the company's property, that is what it actually cost as nearly as could be ascertained from the books and records of the company and the evidence of persons who had any knowledge of the matters involved. The second branch, a company of engineers, undertook to say what it would cost to reproduce all of the property of the company then in existence at the prices obtaining at the time the valuation was made. This work began in June, 1914, and the Commission fixed upon July 1, 1914, as the date to which the values were referable—in other words, the historical cost and the cost of reproduction were ascertained as of July 1, 1914. Subsequent to this date prices of labor and material rose to a height never before witnessed in this country. The final valuation was made as of December 31, 1916, and all property acquired after this date was put into the capital account of the company at its actual cost. This, however, was not satisfactory to the company. It insisted that the cost of reproduction of all the property in existence on the first day of July, 1914, should be

made as of the prices prevailing after that date or of December 31, 1916, at the extremely high cost then current. The Commission fixed the valuation of the company's property at something over $11,000,000 and the company insisted upon a reproduction value of something in excess of $23,000,000.

A great many objections were taken to the findings of the Commission, most of them relating to alleged errors by the Commission in excluding items claimed by the company under its theory of valuation. Availing itself of the provisions of paragraph 64 of the law, the company filed its bill in equity, brought the entire record into court, something over six thousand typewritten pages, and asked the presiding justice to pass upon the errors and exceptions. This was done; the judge went over the entire record (Record, p. 48); he stated, were the evidence to be weighed as of an ordinary civil case he "would find not only that the conclusions of the Commission as to the historical value of the property were sustained by the substantial evidence, but by a preponderance of the evidence" (Record, p. 51). He sustained the Commission upon every point objected to by the company. The prayers of the bill were:

1. For process.

2. For an injunction from putting into operation any rates passed upon the valuation.

3. That the court declare the valuation to be unlawful, inadequate, and unreasonable.

4. For general relief.

From the decree, dismissing the bill, the company appealed to the Court of Appeals, where all of the points in-

volved were again argued. The Court of Appeals reversed the judgment and remanded it to the lower court for further proceedings, passing, however, upon only two points presented by the record. The first point was that the court below failed to exercise "its own independent judgment as to both law and facts" in the valuation of the plaintiff's property. Second, that the court below erred in sustaining the view of the Public Utilities Commission that the company was not entitled to have the reproduction cost of all of its property as an element of value based upon the high cost of labor and material existing between July 1, 1914, and December 31, 1916, occasioned by the war.

Assignment of Errors.

(Record, pp. 1065, 1066.)

The court erred—

1. In ruling that the court below failed to exercise 'its own independent judgment as to both law and facts' in the valuation of the plaintiff's property.

2. In ruling that the court below erred in sustaining the Public Utilities Commission in refusing to allow the increased value of the property between July 1, 1914, and December 31, 1916, in fixing the cost of reproduction of the company's property.

3. In ruling that the Public Utilities Commission and the court below did not take into consideration the increase in the value of the company's property between July 1, 1914, and December 31, 1916.

4. In reversing the cause and remanding for further proceedings.

The case comes to this court upon appeal from the Court of Appeals upon these points.

There is also a claim by the company, made in its bill, that the statute is unconstitutional (Record, p. 31); that there was want of due process of law (Record, p. 21).

These are the questions now before this court. It is not expected that this court will examine any facts in the case except so far as the examination of the facts become necessary to determine the question of law involved, and it is believed that references made by counsel in the briefs to the pages of the record will greatly simplify this task.

I.

Appellate Jurisdiction of This Court.

Appellate jurisdiction depends upon article 3, section 2, of the Constitution.

ARTICLE III.

SECTION 1. * * *

SECTION 2. The judicial power shall extend to all cases, in law and equity, arising under this Constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; * * *

* * * * * * *

In all cases affecting ambassadors, other public ministers and consuls, and those in which a State shall be party, the Su-

preme Court shall have original jurisdiction. In all the other cases before mentioned, the Supreme Court shall have appellate jurisdiction, both as to law and fact, with such exceptions, and under such regulations as the Congress shall make.

"The other cases before mentioned" refers to the beginning of section 2, where the subjects are enumerated to which the judicial power extends. The only ones with which the present case concerns are

> "Cases * * * arising under this Constitution, or under the laws of the United States."

It is not believed that any others of the enumeration will apply.

(a) *Whether This Is a "Case" Within the Meaning of the Section?*

The contention here takes a judicial form between parties whose interests are diverse. The claims of the respective parties have been continuously in opposition and the disputes at times have been acrimonious (Record, 54, 304, 326, 330, 346, 971). The statute has directly authorized the institution of this suit to protect the rights of the utility. In Smith *v.* Adams, 130 U. S., 167, 173; 32 L. R., 895, the court said:

> "Whenever the claim or contention of a party takes such a form that the judicial power is capable of acting upon it, then it becomes a case or controversy."

In Osborne *v.* Bank of United States, 9 Wheat., 738, 819, 6 L. R., 204, it said that the judicial power

"Is capable of acting only when a subject is submitted to it by a party who asserts his rights in the form prescribed by law. It then becomes a case, and the Constitution declares that the judicial power shall extend to all cases arising out of the Constitution, laws and treaties of the United States."

See also Ormsby *v.* Webb, 134 U. S., 47, 59, 60, 61, 65; 33 L. R., 805, where it was decided that an action in the district courts involving the probate of a will was a case within the meaning of this section. Nashville *v.* Cooper, 6 Wall., 247, 252, 253; 18 L. R., 851; Interstate Commerce Commission *v.* Brimson, 154 U. S., 447; 38 L. R., 1041; La Abra Silver Mining Company *v.* United States., 175 U. S., 423, 455, 456; 44 L. R., 223 (involving the powers of a commission created by Congress to adjudicate claims against the government of Mexico).

"A 'case' is a question contested before a court of justice." Martin *v.* Hunter, 1 Wheat, 352; Cohens *v.* Virginia, 6 Wheat., 264; *Ex parte* Milligan, 4 Wall., 133.

"A case 'arises' when its correct decision depends on the construction of the Constitution or laws of the United States." Cohens *v.* Virginia, 6 Wheat., 407; Railroad *v.* Mississippi, 102 U. S., 140; *Ex parte* Carll, 106 U. S., 522.

"A case is a suit instituted according to the regular course of judicial procedure." Marbury *v.* Madison, 1 Cr., 138; Owings *v.* Norwood's lessee, 5 Cr., 348; Martin *v.* Hunter, 1 Wheat., 352.

"The interest of the parties must be adverse." Wood Paper Company *v.* Heft, 8 Wall., 336.

"Equity cases are those suits in which relief is attained according to the principles and practice of the equity juris-

diction as established in English jurisprudence." Irvine *v.* Marshall, 20 How., 565.

The present controversy is a "case" within the meaning of the Constitution unless

First. It presents a case of what is really original jurisdiction under the guise of appellate jurisdiction, or,

Second. It is an attempt to impose administrative legislative duties upon the board—that is, duties not strictly judicial.

First. There are three cases, Baltimore & Ohio Railroad Co. *v.* Interstate Commerce Commission, 215 U. S., 216; Southern Pacific Company *v.* Interstate Commerce Commission, 215 U. S., 226; United States *v.* Terminal Railroad Association, 215 U. S., 595, which came into this court upon a certificate and presented a case to this court for determination where there had been no order, judgment, or decree before the Commission. This court held that this was an attempt to have the court exercise original and not appellate jurisdiction, because of the fact there was no order, judgment, or decree to be reviewed, which was necessary in the exercise of appellate jurisdiction. For this reason the cases were sent back for determination to the court below.

The present case obviously does not fall within this classification because there is a judgment below which is brought here for review (page 7).

Second. Administrative and Judicial Duties.—Congress cannot impose a legislative or executive or administrative duty upon a court exercising "the judicial power" mentioned in article 3, section 1, of the Constitution. Hayburn's Case,

2 Dallas, 408; United States *v.* Ferreira, 13 How., 40; Gordon *v.* United States, 2 Wall., 561 (117 U. S.); United States *v.* Jones, 119 U. S., 477.

In United States v. Ferreira, 13 How., 40, the treaty with Spain provided that satisfaction should be made to Spanish officers and Spanish inhabitants of Florida and Congress had passed an act directing the judge of the Territorial court of Florida to receive and examine claims for losses, and another act of Congress directed the judge of the District Court of the United States for the Northern District of Florida to receive and adjudicate claims by Spanish citizens as had been provided for the territorial courts. *Held*, that an appeal did not lie from the decision of the district judge, his decision not being the judgment of a court, but a mere award, and he in such capacity not exercising the judicial power of the Constitution.

Congress may establish a Court of Claims, but in doing so it does not confer the judicial power of the Constitution. Gordon *v.* U. S., 117 U. S., 699; 2 Wall., 561.

"The United States Commissioner being neither a court or a judge of a court is not vested by law with part of the judicial power of the United States." *In re* Sing. Kuck., 126 Fed., 397.

It is not believed that the instant case falls within the decision of Muskrat *v.* United States, 219 U. S., 246, where the court had under review the constitutionality of a statute which conferred jurisdiction upon the Court of Claims to examine and pass upon the constitutionality of certain laws passed by Congress affecting the Cherokee Indians and the right of appeal from that court to the Supreme Court of the United States. This court held that it had no appellate

power under that act because it did not present a case within the meaning of the Constitution, and also because the judgment of this court was under the statute to be referred to the Secretary of Treasury, to be reported by him in his estimates for appropriations, leaving this court without authority to enforce this judgment. Neither does it fall for the same reasons within the decision of Gordon *v.* United States, 2 Wall., 561; 117 U. S., 699.

This court has on numerous occasions clearly distinguished between functions of the Legislature (or a commission acting for the Legislature) and the functions of the courts, so far as concerns rate-making and the valuations upon which rates are based, one of the earliest and most comprehensive cases being Reagan *v.* Farmers' Loan & Trust Co., 154 U. S., 362, 397, *et seq.*, where it was said (page 397):

> "The courts are not authorized to revise or change the body of rates imposed by a Legislature or a commission; they do not determine whether one rate is preferable to another, or what under all circumstances would be fair and reasonable as between the carriers and the shippers; they do not engage in any mere administrative work; but still there can be no doubt of their power and duty to inquire whether a body of rates prescribed by a Legislature or a commission is unjust and unreasonable, and such as to work a practical destruction to rights of property, and if found so to be, to restrain its operation."

See also

Knoxville *v.* Knoxville, 212 U. S., 1, 8.

Ohio Valley Company *v.* Ben Avon Borough, 253 U. S., 287.

Denver *v.* Denver, 246 U. S., 178.

Consolidated Gas Company *v.* Newton, Advance Sheets of April, 15, 1922, page 305.

Columbus Railway, etc., Co. *v.* City of Columbus, Ohio, *et al.*, 249 U. S., 399, 406.

Rowland *v.* St. Louis, 244 U. S., 106, 107.

Des Moines *v.* Des Moines, 238 U. S., 153, 157.

Lincoln Gas etc., Company *v.* City of Lincoln *et al.*, 250 U. S., 256, 259, *et seq.*

Interstate Commerce Commission *v.* Union Pacific Railway Company, 222 U. S., 541, 547.

The above are rate and valuation cases.

It might be well to observe at this point that this court has the power to determine all the questions in the case upon the record here, a hope which was expressed at the beginning of the argument on the merits. Denver *v.* Denver Union Water Company, 246 U. S., 178, 181; 62 L. Ed., 657, is an action to restrain enforcement of water rates made by the city. The case was referred to a master, the master made a report to which exceptions were taken, but the court declined to pass upon the exceptions (181). This court said it was the duty of the court to pass upon the exceptions, but that the error in procedure in failing to do so did not necessitate sending the case back (182). This court thereupon passed upon the elements entering upon the valuations of the company's property and disposed of the issues raised (184 *et seq.*).

Courts of the District of Columbia.

"The Supreme Court of the District of Columbia shall possess the same powers and exercise the same

jurisdiction as a circuit court of the United States." Sec. 760, R. S., D. C.

"The Circuit Court of the District of Columbia has jurisdiction in all cases arising under the Constitution and laws of the United States and treaties made under their authority, if either of the parties shall be resident or found within the District. It has all the Federal jurisdiction of a circuit court of the United States, and all the jurisdiction of a State court." United States *v.* Kendall, 5 Cr. C. C., 161.

"The words 'Courts of the United States,' where they appear in an act of Congress, embrace the Supreme Court of the District of Columbia, unless a contrary intent appears." *Ex parte* Norvell, 20 D. C., 348.

"The Supreme Court of the District of Columbia, in addition to other powers not vested in the circuit and district courts of the United States, possesses all the jurisdiction and powers of those courts." *In re* Spencer, MacA. & M., 433.

"The Supreme Court of the District of Columbia is a 'court of the United States' within the meaning of the Federal statutes." Noerr *v.* Brewer, 1 MacA., 507.

Article 1, section 8, clause 17, of the Constitution, provides:

"The Congress shall have power * * * to exercise exclusive legislation in all cases whatsoever over such District (not exceeding ten miles square) as may, by cession of particular States, and the acceptance of Congress, become the seat of government of the United States."

In Cohens *v.* Virginia (6 Wheat., 264, 424) Chief Justice Marshall, speaking of this power, said:

> "This power, like all others which are specified, is conferred on Congress as a Legislature of the Union; for, strip them of that character, and they would not possess it. In no other character can it be exercised. In legislating for the District, they necessarily preserve the character of the Legislature of the Union; for it is in that character alone that the Constitution confers on them this power of exclusive legislation."

Whether Congress acted merely as a local Legislature in the District was referred to, but not decided, in Loughborough *v.* Blake, 5 Wh., 317.

The Supreme Court of the District of Columbia is a court of the United States. Embrey *v.* Palmer, 107 U. S., 3; 27 L. E., 346; Deposit Bank *v.* Frankfort, 191 U. S., 516; Moss. *v.* U. S., 23 App. D. C., 483; *Ex parte* Howell, 9 Mack., 352.

(b) The Case "Arises under the Constitution."

The bill of the company is framed upon the theory that it is deprived of its property without just compensation and without due process, as well as upon the statute (R., 47, 21). It is entitled, therefore, to resort to the courts for the protection of those rights; otherwise it would be without remedy. This is, therefore, a "case" arising "under this Constitution." Hollis *v.* Kutz, 255 U. S., 482. The statute, to be valid, must provide for a judicial review. Ohio Valley Co. *v.* Ben Avon Borough, 253 U. S., 287.

Under the Public Utilities law, the Commission is authorized to fix the rates of the various public utility companies and is required to base these rates upon the fair valuation of the property of the utility. The Public Utilities Commission, in the present case, at the time of instituting these pro-

ceedings, notified the Potomac Electric Power Company that "the aforesaid valuation will be made as a basis for fixing the rates, tolls, and charges of the Potomac Electric Power Company to be paid by the public, and the elements will be considered with especial reference to that purpose" (R., page 5). The relation of the value of the property of the company to the proposed rates was indicated by this court in the Minnesota Rate cases (Simpson *v.* Shepherd, 230 U. S., 352, 433), as follows:

> "(1) The basis of calculation is the 'fair value of the property' used for the convenience of the public. Smyth *v.* Ames, *supra* (p. 546). Or, as it was put in San Diego Land & Town Co. *v.* National City, *supra* (p. 757), 'What the company is entitled to demand, in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public.' See also San Diego Land & Town Co. *v.* Jasper, *supra;* Willcox *v.* Consolidated Gas Co., *supra.*"

In view of the foregoing, if a rate-fixing commission omits part of the properties of the company from its consideration, then it necessarily follows that the valuation of the Commission, based as it is upon a portion only of the value of the company's property, renders non-productive the excluded or omitted portion, deprives the company of its fair return *pro tanto,* and amounts to potential confiscation. In the present case, the Commission fixed the fair value of the company's property at something over $11,000,000, or less than half of the $23,000,000 value claimed by the company. It was to set aside this alleged confiscatory valuation and to enjoin the

putting into effect of rates based upon such valuation that the Potomac Electric Power Company filed these proceedings.

This court has uniformly held that the imposition, or attempted imposition, of unreasonable and therefore confiscatory rates, based upon an improper valuation, involves a taking of private property without due process of law and a taking of private property for public use without just compensation, and sustained the appellate jurisdiction of the court as involving a constitutional question.

In Columbus Railway and Power Company *v.* Columbus, 249 U. S., 399, 405, 406, it was contended by the power company (page 405) "That the enforcement of the said rates of fare would violate the 14th Amendment to the Constitution of the United States. That such rates of fare are inadequate and confiscatory and their enforcement will deprive the company of its property without due process of law." This court held (page 406) that "substantial questions arising under the Federal Constitution were presented by the bill, and that the court had jurisdiction."

See also

Chicago, etc., Railway Company *v.* Minnesota, 134 U. S., 418, 458.

City of Mitchell *v.* Dakota Telephone Company, 246 U. S., 396.

Knoxville *v.* Water Co., 212 U. S., 1, 2, 6, *et seq.*

Wilcox *v.* Consolidated Gas Company, 212 U. S., 19, 41.

Des Moines Gas Co. *v.* Des Moines, 238 U. S., 153, 157, 158.

Rowland *v.* St. Louis, etc., Railroad Co., 244 U. S., 106, 107.

Denver *v.* Denver Union Water Company, 246 U. S., 178, 180.

Lincoln Gas Co. *v.* Lincoln, 250 U. S., 256, 259, 264.

Atlantic Coast Line *v.* N. C. Corporation Com., 206 U. S., 1, 24.

Reagan *v.* Farmers' Loan and Trust Company, 154 U. S., 362, 398.

Interstate Commerce Com. *v.* Union Pac. Rlwy., 222 U. S., 541, 547.

(*c*) *This Case Arises under "Laws of the United States."*

The reasoning adopted in the case of the Amer. Security & Trust Co. *v.* Dist. of Col., 224 U. S., 491, and Heald *v.* District of Columbia, 254 U. S., 20, holding in the first case that an act of Congress applicable only to the District of Columbia is not a "law of the United States" within the meaning of section 250 of the Judicial Code, regulating appeals from the Court of Appeals to this court, where the construction only of the law is drawn in question; and, in the second case, that it is a law of the United States where the constitutionality is drawn in question, is not available in this case, because the Constitution does not contain the varying language found in the two clauses of the Judicial Code which made that interpretation possible. The Constitution merely requires that there be a "case" arising under the "laws of the United States." The local act is, therefore, a law of the United States for the purpose of this section; otherwise there would be no appeal to this court, either on the construction or the constitutionality of such an act, but this court has held that is such an appeal on the question of constitutionality (Heald case).

The present litigation is a "case" arising both under the Constitution and also under a law of the United States, and this court has appellate jurisdiction.

II.

Whether Final Judgment Necessary.

There is nothing in the Constitution which requires a final judgment as a necessary element for the exercise of the appellate power of this court. This is exemplified by the legislation permitting this court to review cases from inferior Federal courts entering interlocutory orders granting injunctions. U. S. Fidelity Co. *v.* Bray, 225 U. S., 205, 214. (The court said in this case (p. 214) that it was authorized to review "the whole of the interlocutory decree, not merely the part granting the injunction, and also to determine whether there was any insuperable objection, in point of jurisdiction or merits, to the maintenance of the suit, and, if there was, to direct a final decree dismissing the bill.") See also Denver *v.* New York Trust Co., 229 U. S., 123, 136. The court also said it had the power to review an interlocutory order on certiorari (133, 136).

Cases usually come to this court by appeal or writ of error only from the final judgment of the Court of Appeals. Under section two hundred and fifty of the Judicial Code, regulating appeals and writs of error from the Court of Appeals of the District of Columbia to this court, it is expressly provided "any *final* judgment or decree of the Court of Appeals of the District of Columbia may be re-examined and affirmed, reversed or modified, by the Supreme Court of the United States upon writ of error or appeal in the

following cases." There is here only an appeal from the final judgment or decree, and that only in a limited class of cases provided for in that section. The succeeding section provided for certiorari and for certifying cases to this court for opinion where judgment of the Court of Appeals would be final. The Judicial Code was passed March 3, 1911, the Public Utilities Act, March 4, 1913.

Under paragraph sixty-four, it will be noted that any public utility or any person or corporation dissatisfied "with *any order or decision* of the Commission" may file a bill in equity for review of that order or decision, and that such cases shall have precedence over civil causes of a different nature in the Supreme Court of the District. There is no provision at this stage for an appeal by the Commission. Probably because it would be absurd to have the Commission appeal from its own orders, which situation will arise if this cause be remanded to the Supreme Court of the District of Columbia and from the Supreme Court of the District to the Commission to carry out the instructions of the Court of Appeals relating to the cost of reproduction of the company's property.

The statute then provides "any party, including said Commission, may appeal from the order or decree of said court to the Court of Appeals of the District of Columbia and therefrom to the Supreme Court of the United States, which shall thereupon have and take jurisdiction *in every such appeal.*" Here is again a failure to require that the order or decree shall be final. That this difference in language between this act and the Judicial Code is intentional is apparent from the fact that disputes between the Public Utilities Commission and the utilities under their jurisdiction would be of suffi-

cient importance, as touching the public body at large, to justify an appeal to this court in all cases. Not only is the right given to the equity court to review "any order or decision of the Commission," but the statute also prescribes, in furtherance of this view, that such cases shall have precedence over other civil business, and that the court shall be always open for the trial of such cases.

Should, however, a final judgment be deemed necessary for the purpose of appeal, and that the judgment be rendered is not a final judgment, and the cause be remanded to the Supreme Court of the District of Columbia for further proceedings, pursuant to the mandate of the Court of Appeals, the cause would then be referred again to the Commission to ascertain the cost of reproduction, taking into consideration the high prices and inflated values existing between July 1, 1914, and December 31, 1916. After making allowance for high costs existing between these two periods, an allowance not deemed fair by the Commission but insisted upon by the Court of Appeals, how would the Commission get this question before the equity court, or would the Commission be entitled, after making such revaluation, to go into the equity court to review its own finding, although that finding was made under protest? Undoubtedly the company would be found protesting that there was no way under the statute in which the Commission could appeal to the equity court, and the Commission would find itself involved in a tangle of technicalities, a way out of which would be exceedingly difficult, if not impossible.

III.

Finality of the Judgment Below.

It is questionable whether this judgment is a final judgment in form, but there cannot be much doubt, however, that it was a final judgment in substance. The Court of Appeals held that the Commission and Supreme Court of the District of Columbia both erred in a fundamental respect in arriving at a reproduction value of the company's property and in not giving proper weight to the high costs prevailing between the first day of July, 1914, the day fixed by the Commission for the reproduction, and December 31, 1916, as of which time the final valuation was made by the Commission, the Commission's finding of fair value was $11,231,170.43. The reproduction value claimed by the company was $23,235,387. With this disparity in figures it is apparent that this was the most serious element of the case. Under the ruling of the Court of Appeals the Supreme Court of the District apparently could do nothing but issue an injunction against the Commission from using or putting into force it valuation as a basis for the making of rates.

By an early decision of this court, in Grant *v.* Phœnix Insurance Company, 106 U. S., 429, it was then established, and it has been consistently adhered to ever since, that a final decree or judgment, for the purposes of appeal to this court, is one that terminates the controversy "on the merits of the case," and that a judgment or decree is final on the merits when it is final "on all matters within the pleadings" (Winthrop Iron Company *v.* Meeker, 109 U. S., 180, 183, 184).

In Carondelet Canal Company *v.* Louisiana, 233 U. S.,

362, the State of Louisiana brought suit to recover from the canal company certain properties. The suit was dismissed by the trial court and on appeal to the Supreme Court of the State the judgment reversed, and it was ordered that the canal company deliver to the State the properties in question, reserving, however, "for further adjudication in the proceedings," the claims of the State to a portion of the property, and also ordering an accounting of the receipts and disbursements in the management of the property while it had been in possession of the canal company, and the case was remanded to the trial court "for further proceedings on all questions reserved as above stated, and that the right of the plaintiff to obtain judgment for such an amount as may be found due upon defendant's accounting, and to take such further proceedings and obtain such further orders as may be required for the execution of this judgment, be reserved" (pages 370-371). In disposing of the contention that the judgment in question was not a final judgment, this court said:

> "The judgment disposes of and orders the delivery of practically all of the property sued for: (1) the waterway in its entirety; (2) all the property and improvements appurtenant to it, including the roadway or roadways upon the sides of it. It reserves property not appurtenant and an accounting of certain disbursements. The reservation concerns only a small piece of ground upon which there was a dispute as to whether it was appurtenant to the canal, a question the court apparently could not determine, as it was a question of fact. All else will be taken from the canal company and delivered to the State. That is, all was decreed that it was the purpose of the suit to have decreed and which not only consti-

> tuted its success, but which involved and disposed of the Federal right asserted by the canal company. The judgment, therefore, has a substantial finality. Is it not as well in form?"

In Forgay v. Conrad, 6 Howard, 201, where the judgment appealed from set aside certain deeds as prayed, directed an accounting and retained the bill for further decree in the premises, this court, in holding the decree to be final, said:

> "Undoubtedly, it is not final, in the strict, technical sense of that term. But this court has not heretofore understood the words 'final decrees' in this strict and technical sense, but has given to them a more liberal and, as we think, a more reasonable construction, and one more consonant to the intention of the legislature."

See, also,

Trustees *v.* Greenough, 105 U. S., 527, 531 (holding the decree was "substantially a final decree for the purposes of an appeal").

St. Louis, etc., Railroad Company *v.* Southern Express Company, 108 U. S., 24.

In re Farmers' Loan and Trust Co., ~~109~~ 129 U. S., 206, 215.

C. & P. Telephone Co. *v.* Manning, 186 U. S., 238.

In the instant case the petition filed in the trial court prayed that the valuation fixed by the Public Utilities Commission be vacated and set aside as unlawful, inadequate, and unreasonable, and that the Commission be enjoined from attempting to put into operation any rates based thereon

(R., p. 33). The trial court sustained the valuation and dismissed the petition. The Court of Appeals reversed the judgment of the trial court, holding, in substance, that the valuation was unlawful, inadequate, and unreasonable through failure to fix the valuation as of December 31, 1916, and remanded the case "for further proceedings not inconsistent with this opinion." This was a disposal of the case upon the merits of the controversy. The power company prayed to have the valuation set aside and the Court of Appeals granted that relief. The controversy was thus ended, inasmuch as it was utterly beyond the power of the trial court to make a new valuation and the only function that court could perform would be the ministerial one of entering the decree of the Court of Appeals vacating the valuation. The trial court could not direct the Commission to make a new valuation, as that would be a legislative function. If the Commission should proceed to make a revaluation, giving effect to the elements of value declared legal by the Court of Appeals, the valuation would be an entirely new one, which would be the subject of a new proceeding in the equity court. It follows, then, that the language used by the Court of Appeals in remanding the case for further proceedings not inconsistent with its decision is purely formal, and that the function of the court is ended when it decides whether a proposed valuation or rate is or is not confiscatory (Consolidated Gas Company *v.* Newton, Advance Sheets of April 15, 1922, page 305; Reagan *v.* Farmers' Loan & Trust Co., 154 U. S., 362, 397).

Certiorari.

The court's attention is directed to the fact that when the motion for an appeal was submitted counsel requested that a certiorari be granted in the event an appeal should be denied. That request is repeated now.

Respectfully submitted,

F. H. STEPHENS,
General Counsel, P. U. C.
CONRAD H. SYME,
Special Counsel, P. U. C.
GEO. P. BARSE,
Asst. Corp. Counsel,
Attorneys for Appellants.

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